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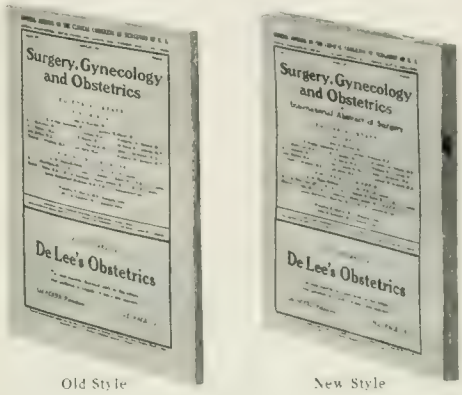

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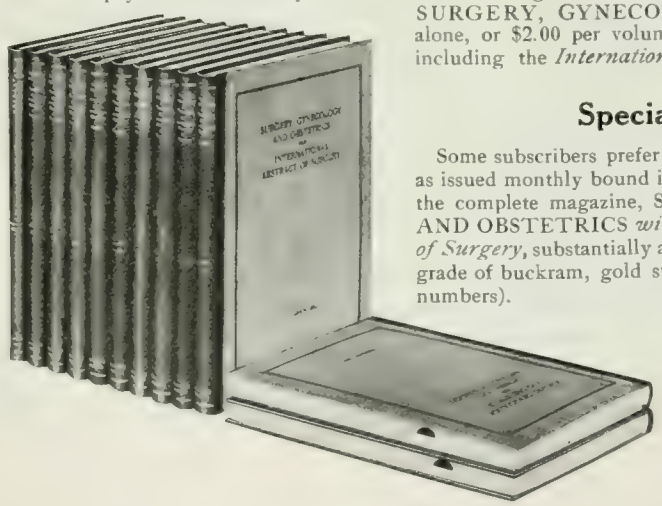

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The INTERNATIONAL ABSTRACT OF SURGERY is not an experiment — its success was assured from the beginning, as evidenced by the volume of orders for the new publication received from subscribers to SURGERY, GYNECOLOGY AND OBSTETRICS following the publication of the first number in February. The need of such a work is everywhere admitted, and we confidently expect that every one of the present subscribers to SURGERY, GYNECOLOGY AND OBSTETRICS will want the supplementary publication.

This is the first serious attempt to publish in English a complete, comprehensive and authoritative review and index of the surgical literature of the world. A careful examination of the first three numbers and a consideration of the plans for and the scope of the new publication will demonstrate that we have at our command the necessary facilities for accomplishing this important task. These plans include reciprocal agreements between SURGERY, GYNECOLOGY AND OBSTETRICS and the three leading abstract journals of Europe, viz.: *Journal de Chirurgie*, *Zentralblatt für die gesamte Chirurgie und ihre Grenzgebiete*, and *Zentralblatt für die gesamte Gynäkologie und Geburtshilfe sowie deren Grenzgebiete*. From these three journals the INTERNATIONAL ABSTRACT OF SURGERY is to receive abstracts and indexes of the surgical literature appearing in journals published in foreign languages, while a representative editorial staff for America and the British Empire, supplementing the present staff of SURGERY, GYNECOLOGY AND OBSTETRICS, has been organized to abstract and index articles appearing in the American and English publications and to translate and edit the material furnished by our foreign contemporaries. Such a plan provides a journal which, for comprehensiveness, accuracy and authoritativeness, must be superior to any journal that might be brought forth by one editorial staff attempting to cover all countries and languages.

INTERNATIONAL ABSTRACT OF SURGERY

APRIL, 1913

ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Trout: Proctoclysis: Experimental Study. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

In February, 1912, Trout had presented a preliminary report of a comparative study of saline solution and tap water for proctoclysis in nearly 1000 cases. The present report, which he presented before the December meeting, was based on over 2000 cases, and included all types of operations, as well as replies received from 232 hospitals, with the following deductions:

(1) There is no uniformity in preparing saline solutions in the various hospitals; (2) a soft rubber catheter is employed instead of a hard nozzle, and very seldom does the patient realize anything is in the rectum; (3) all sodium salts are toxic, and quite frequently dangerous doses are being given by the rectum; (4) tap water does not irritate the rectum, and patients will absorb one third more than they will of salt solution; (5) it requires twice as much water by mouth to relieve thirst when patients are taking salt solution by rectum; (6) salt solution does not seem to have any effect on the renal functional test of phenolsulphophthalein; (7) 27 cases have tasted salt without knowing the character of the solution they were taking by rectum; (8) 58 cases have been operated on at other hospitals, and all have commented on the absence of thirst and decrease in nausea in comparison with previous operations; (9) 287 operations on the perineum and rectum in which proctoclysis could not be employed have been in the hospital during this period, and all showed a marked increase in thirst and nausea in comparison with other cases; (10) 4 cases of death are reported in the literature from the use of salt solution; (11) the giving of fluid by rectum meets nature's demands for the relief of post-operative thirst in a simple, effective and harmless manner.

The following experiences and opinions were given in discussing Trout's paper:

Jonas had been changing from saline solution in the rectum to plain water proctoclysis, and although he could not give the exact statistics, he could confirm the very favorable report of the essayist. Patients had been much more comfortable. Œdema of the legs had been observed less frequently.

McRae knew of a case in which a stronger salt solution was used instead of the usual dilute salt solution, and death supervened twelve hours later. It was a simple appendectomy, where the nurse used a pint of the stronger solution.

Parham had for some time been using very much weaker solution, namely 0.1 per cent solution, in place of the ordinary normal salt solution, but had not done it as systematically as the essayist, who had brought out clearly the advantages of using water in place of salt solution in most of these cases.

Milne, of London, said it would be interesting to know the temperature of the tap water in the receptacle. At the London Hospital they gave salt solution as a routine for years, and in the receptacle the temperature of it was 105°, until some one found that when the saline solution came out of the end of the catheter its temperature was only about 90°; that is, in running through a rubber tube three or four feet long the saline solution drops about 15 or 20 degrees in temperature. Since then they usually kept it in a thermo-flask at the foot of the bed, at a temperature of 120°.

Elbrecht was of the opinion that if one would take a tube six feet long, which was about the average length of the tube which would be used for proctoclysis work, he would find there was a drop of 40° in temperature in the six feet of rubber tubing, with the water running at the rate of 60 drops per minute. This he simply used as a standard to gauge how much salt solution would run in in an hour.

Carr had always been rather afraid of salt solution, especially used intravenously and subcutaneously; he did not think he had given it intravenously in half-a-dozen cases, and he seldom used it under the skin. He was glad to hear of such gratifying results from the use of plain tap water.

In conclusion, Trout said he had been able, except in a few cases, to get nine quarts of salt solution in the rectum. He had found drainage cases absorbed more than any other class of cases. He used 3500 to 4000 cc. in water cases, and from 2500 to 3000 cc. in salt solution. He gave it every two or three hours by catheter,—would let it run in and then take out the catheter. E. S. Talbot, Jr.

ASEPTIC AND ANTISEPTIC SURGERY

Hoffmann: The Rapid Disinfection of the Mucosa at Operations During Which the Gastro-intestinal Tract is Opened (Zur Schnelldisinfektion der Schleimhaut bei Operationen mit Eröffnung des Magendarmtractus). *Beit. z. klin. Chir.*, 1912, lxxx, No. 3. By Surg., Gynec. & Obst.

There is always more or less danger of infecting the peritoneal cavity in those cases where it becomes necessary to open into the lumen of the stomach or bowel. The attempt to render the gastro-intestinal canal aseptic by the administration of intestinal antiseptics has proven an utter failure and has been abandoned. Notwithstanding the strict observance of technical detail as to cleanliness, dexterity and gentleness, there will be cases from time to time in which some degree of local infection has followed the opening of any of the hollow viscera.

Encouraged by his success with thymol-alcohol in disinfection of the skin, Hoffmann determined to try the effects of this powerful germicide on mucous membranes. Experiments were made on dogs by opening the intestine and making cultures from the mucosa. Then the mucous membrane was treated for one minute by applying a pledget of gauze saturated with a 5 per cent solution of thymol in alcohol. Cultures were then taken from the mucous membrane, immediately and for fifteen minutes afterward, and all remained sterile. The mucous membrane was then excised and subjected to a histological examination, which revealed no change whatever in the tissues. Then, in order to determine whether a longer application of the solution would be detrimental to the mucous membrane, the application was continued for from five to fifteen minutes. In these cases necrosis of the membrane followed, showing that an application lasting longer than one or two minutes was not safe.

Hoffmann concludes, as the result of his experiments, that 5 per cent thymol-alcohol when applied to mucous membranes for one minute is a safe and efficient disinfectant. He cautions against allowing the solution to come in contact with the peritoneum. This solution is applicable not alone in intestinal work, but has been found to be a very efficient disinfectant of the vagina. William Hessert.

ANÆSTHETICS

Eisenbrey: Observations on the Use of Intratracheal Anæsthesia in Experimental Work; with a Description of a Simple and Inexpensive Apparatus. *Surg., Gynec. & Obst.*, 1912, xv, 715. By Surg., Gynec. & Obst.

The writer gives a detailed description of an apparatus of his own design for intratracheal anæsthesia which combines simplicity, small cost, and ease of construction, and the essential features of which are a constant air supply, a means of diverting, by the use of the rocker valve principle, all or any portion of the air through an ether container, and a tube for conducting the mixed air and ether into the trachea.

Several practical points in intratracheal insufflation and in the use of this apparatus are ably discussed. Warming the air is thought to be of advantage in aiding vaporization of the ether, although the air loses its heat as it passes through the delivery tube to the tracheal catheter. The danger of overanæsthetization if the air is allowed to bubble through the ether is pointed out, together with the efficiency of the artificial respiration provided by reversing the lever. The recession of the ether by evaporation, thus decreasing the amount of anæsthetic the patient receives while still supplying his lessening needs as the duration of the anæsthesia lengthens, is remarked upon. The question of the percentage of ether given is disposed of, and the technique of the introduction of the catheter is described.

At what pressure the apparatus should be operated is discussed, and it is shown that the pressure to which the lungs are subjected cannot be judged by the mercury manometer, as it is dependent on the amount of space between the catheter and the trachea. The choice of the proper sized catheter with which to distend the lungs to the proper degree is difficult, but a small one is best, as the outflow can always be lessened by digital compression of the trachea. The prevention of overdistention in both clinical and experimental cases is also taken up.

Finally, it was found that raising the intratracheal pressure to 8 or 10 mm. resulted in a condition of apnœa or pseudapnœa which in the author's opinion was not an acapnœa due to CO_2 exhaustion, because its appearance was simultaneous with the rise of intratracheal pressure and not the result of a previous overventilation. It is accompanied by full distention of the lungs, which interferes with access to the viscera, and by a serious fall in blood pressure, of from 20 to 40 mm. This phase of the question will be dealt with in a later paper. E. K. Armstrong.

Collier: Improved Technique of Ether Vapor and Nitrous Oxide-Oxygen Anæsthesias. *J. M. Ass. Ga.*, 1912, ii, Dec. By Surg., Gynec. & Obst.

The author goes into detail in describing the apparatus he uses in both the ether vapor and nitrous oxide-oxygen anæsthesias. Special attention is called to the warming device of each.

In the ether vapor apparatus the air, mixed with ether or chloroform, or both, in varying proportions by a regulating index plate, is forced to the patient through the warming chamber by a compression bulb or foot pump just in advance of each inhalation. This gives a regular narcosis with a minimum amount of the anæsthetic, producing less nausea and kidney and liver derangements, and causing little or none of the respiratory irritations frequently seen in the ordinary methods now in use.

The author finds the warming chamber in connection with his nitrous oxide-oxygen apparatus quite an advantage, as the warmed gases are much more readily taken up by the blood than cold and are less chilling to the mucous membranes of the respiratory tract. In all septic and toxic cases, where the patient needs all his phagocytes, the author knows of no other anæsthetic that equals or even approaches nitrous oxide-oxygen. His experience has shown such a marked difference in the immediate and remote after effects on the patient that, to his mind, gas-oxygen is the anæsthetic of choice in all such cases. Patients begin to improve immediately, provided, of course, they are not already surcharged with toxins.

The average length of the author's 194 true nitrous oxide-oxygen anæsthesias to date was 37½ minutes. In 17 other cases, with an average duration of one hour and fifteen minutes, he found it necessary to supplement the gas-oxygen with ether in order to get complete muscular relaxation, only requiring, however, an average of 7½ dr. of ether for each case, showing profound anæsthesia of ten minutes for each dram of ether so employed. He urges the more general use of the nitrous oxide anæsthesia, especially in all cases of septic and toxic nature.

Ambard and De Martel: Prolonged Anæsthesia with Nitrous Oxide (Anesthésie prolongée par le protoxyde d'azote). *Compt.-rend. Soc. de Biol.*, Par., 1912, xxiii, 652. By Journal de Chirurgie.

To obtain an anæsthesia of long duration it is necessary to add oxygen to the nitrous oxide, because the latter will not assure hæmatosis. As the mixture of oxygen and nitrous oxide produces little anæsthesia, some asphyxia is necessarily used (2 to 3 per cent only of oxygen up to 9 to 10 per cent). Two other methods may be used which prevent bordering too greatly on asphyxia. One, the method of P. Bert, consists of the administration of the anæsthetizing mixture in a chamber under pressure. The other, inaugurated by Neu in 1901, consists in preceding the anæsthetic by an injection of scopolamin.

The authors report ten anæsthesias under pressure and five under scopolamin with nitrous oxide and air. These anæsthetics under pressure were given from an apparatus by M. Gauthier with a pressure of 30 to 40 cm. of mercury and a gaseous mixture of seven parts nitrous oxide and one part oxygen. The average duration of anæsthesia was about half an hour, although two of them were almost an hour.

Anæsthesia by nitrous oxide under pressure is rapid and without the period of excitation. Awakening is rapid and without malaise or vomiting. This is the ideal anæsthetic for the patient as well as for the operator. It will be of great service to those patients who take chloroform poorly.

In their five anæsthesias by Neu's method the authors injected 1 mg. of scopolamin and 1 cg. of morphin half an hour before the anæsthetic. They put the patient to sleep with 10 parts nitrous oxide and 1 part oxygen. Sleep was profound, asphyxia was light, and the awakening prompt (5 to 6 minutes), but the patients were apathetic for seven hours. Once they observed vomiting.

The authors think the method of Bert is of the first order, from the point of view of harmlessness, its relative complexity being the only objection.

PIERRE CRUET.

Rood: Regional Anæsthesia. *Brit. M. J.*, 1912, ii, 1701. By Surg., Gynec. & Obst.

Regional anæsthesia can be used for any type of operation, upon any part of the body supplied by nerves which are at some part of their course anatomically accessible. By anatomically accessible is meant such a position of the nerve that it is possible to pass a fine needle down to it, and so introduce a strong solution of the analgesic fluid. The musculo-spiral nerve in the arm and the median nerve at the wrist are both cases in point. The characteristics of this form of anæsthesia are:

1. Granted that a suitable anæsthetic solution is introduced around the trunk of a nerve, the whole area supplied by that nerve becomes anæsthetic — bone, muscle, fascia, skin, etc.

2. The method can be used for operations upon inflamed tissues provided the injection around the nerve trunk be made at some point well above the septic area.

3. The anatomical relations of the part to be operated upon are not obscured by œdema caused by a large quantity of injected fluid, as is sometimes the case with the wide infiltration method.

4. The anæsthesia lasts for several hours.

5. The anæsthetic area is clearly defined by the anatomical distribution of the nerves. Consequently there is no risk of suddenly overstepping the limits of the anæsthesia, with most unpleasant results to the patient.

A very important factor in the success of this form of anæsthesia is the solution used. Either eucain, stovain, or novocain may be employed, but the author reports the best results from novocain. A 2½ per cent solution of novocain in distilled water is prepared, and sufficient sodium chloride is added to make the fluid isotonic with the blood. The whole is then sterilized by boiling, which can be done without detriment to the novocain; it is, of course, absolutely necessary that this fluid should be sterile, and for this reason it should be freshly prepared for

each case shortly before using. The formula of the solution is: Novocain, 2 gr., sodium chloride, 0.5 gr., distilled water, 100 cc. Five drops of a 1:10,000 solution of adrenalin are added to each 20 cc. of solution immediately before use.

The author reports 254 cases in which this method was employed: 150 operations on the hand, 17 on the wrist and forearm, 1 on the arm, 43 on the thorax, 6 in the abdomen, and 37 on the foot. In only 7 of these was general anæsthesia needed to complete the operation. On the whole the anæsthesia was very satisfactory. Two things determine the success — anatomy and novocain.

M. S. HENDERSON.

SURGICAL INSTRUMENTS AND APPARATUS

Dams: A New Apparatus for Pressure in Narcosis (À propos du principe de Brauer. Un nouvel appareil à baronarcose). *Ann. d. l. Soc. belge d. Chir.*, 1912, xii, 494. By Journal de Chirurgie.

The principle of the apparatus for hyperpressure in surgery of the thorax seems unanimously admitted to be substantial. However, the apparatus used is not popular, and the author believes this to be due to the fact that it is too cumbersome and bulky. He therefore constructed a compact and practical instrument which could be used without question and without preliminary experience. The principal difficulty in the pressure narcosis apparatus is the necessity of introducing the anæsthetic beforehand into a medium of compressed air. In order to introduce the liquid into a closed tube of compressed gas without letting the latter escape, the author employed an asbestos wick which traversed the wall of the tube and which absorbed the volatile liquid as it was needed. This apparatus is based upon the principle of capillary attraction. Its weight does not exceed 155 gm., and its dimensions are small enough to permit its introduction into an ordinary instrument case. The technique for the use of the new instrument is very simple.

The mouthpiece is an elliptical plate of thin elastic metal curved to conform to the shape of a dental arch. It is designed to be placed within the lips, between them and the teeth, and contains a rectangular tube in which the tambour slides with a great amount of friction. The tambour is a small metallic cylinder, divided into two chambers by a septum parallel to its bases. L. MAYER.

SURGERY OF THE HEAD AND NECK

HEAD

Davis: A Cheek Defect and Its Repair by Plastic Operation. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

The following case was reported by Davis: Male, aged 16. Defect 6.3 cc. in diameter, involving the whole thickness of the right cheek. Probably caused by cancrum oris, which occurred as a typhoid complication two years previously. The surrounding soft parts were infiltrated with scar tissue. The tongue was adherent to the lower border of the defect, and there was inability to open the jaws To close this defect a flap was necessary which should fulfill several conditions. It should have enough thickness to fill the defect without causing a depressed scar after healing was complete. It should be formed of tissue which would conform in appearance to the surrounding skin externally, and take the place of the mucous membrane of the mouth. A rectangular flap 7.5 x 16 cm., of whole thickness of skin and subcutaneous fat, was raised from the right arm. The pedicle was in the mid-deltoid region. The flap was folded on itself, and the distal end sutured to the pedicle and underlying muscle, thus bringing raw surface to raw surface and forming a flap with fat within, and the whole thickness of the skin on front and back. This was held flat on a wire frame. Two weeks later the tongue was freed, the arm was raised and the flap was sutured into the upper two thirds of the defect. The arm was held in position by a plaster cast. The pedicle was amputated after eleven days, and eleven days later the remainder of the opening was completely closed. Several attempts were made to relieve the fibrous ankylosis of the jaws, but without success.

By this method of treatment the defect was filled by a pad of tissue with the whole thickness of the skin on both sides. The circulation of the flap was assured before transplantation was begun. Most of the shrinkage had taken place before it was transplanted. There was no unsightly scarring of the cheek or neck. The area from which the flap was secured was healed by Thiersch grafts by the time the flap was ready for transplantation. On the whole, the result was very satisfactory.

E. S. TALBOT, JR.

Vance: Head Injuries. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Eight cases were reported by Vance, which may be summarized as follows:

CASE 1. Twelve years before operation patient was struck on the head with a shovel, followed by development of epilepsy. Operation, at the site of injury, consisted of the removal of a good-sized button, and resulted in complete recovery. There were no further epileptic seizures. The patient died of pneumonia ten years later.

CASE 2. Patient, 45 years old, became paralyzed two days before operation, and gradually lapsed into complete coma and developed paralysis, beginning on the left side and extending to the whole body, including the face. Sensation on the left side

was entirely absent and greatly diminished on the right. Bowels and bladder paralyzed; eye reflexes absent. Operation: Upon shaving the scalp the head showed a curious condition. The whole scalp was œdematous, and the right half presented the appearance of angioma, the veins were so greatly dilated. A piece of bone the size of a ten-cent piece was removed, and the opening then enlarged to the size of a half-dollar. The dura was incised, the brain explored with suction needle, and one half ounce of fluid obtained. Wound was closed without drainage. Complete recovery. This condition resembled very much what is designated by two or three authors as "wet brain."

Case 3. Boy, aged 10; head injured in street car accident. Scalp torn from both sides of the skull; loss of the parietal bone. Scalp cleansed, parts adjusted, and separate dressings applied. Twelve days later, with the patient in good condition, another doctor was called to soak the dressing off, which the author declined to do. The uncovered meninges became infected, and the boy died three days later.

Case 4. Injury of the skull in the right parietal region, patient being struck on the head by a base-ball. Decompression operation nine weeks later, with removal of a good-sized button. Complete recovery, with no recollection of the accident by the patient.

Case 5. Boy, aged 10, sustained extensive compound fracture of the skull. The mastoid region and the area back of and above the ear were crushed. Operation consisted of removal of several pieces of bone, the scalp being sutured without drainage. Complete recovery.

Case 6. Epilepsy, with loss of speech and power of locomotion, following an injury to the head. Examination revealed depression over the left brow and temporal region. Operation consisted of removal of a large piece of bone without subsequent drainage, followed by complete recovery.

Case 7. Pistol wound at the junction of the frontal with the parietal bone, large enough to admit one's thumb. Operation consisted of removal of fracture with some brain matter, as well as fragments of bullet. Followed by complete recovery.

Case 8. Pistol wound through the roof of the mouth, a little anterior to the junction of the soft with the hard palates, the bullet going entirely through the brain. No operative measures were carried out at this time. Mouth sprayed with antiseptic fluids and liquid nourishment given. At the end of six weeks the bullet was removed, together with several pieces of the skull. This was followed by complete recovery. E. S. Talbot, Jr.

McGuire: A New Operation for Decompression. *N. Y. M. J.*, 1912, xcvi, 1265.

By Surg., Gynec. & Obst.

The cause of the advancement in abdominal surgery has been the study of pathology in the living, and that the reverse is true of cranial surgery is due to the lack of that study. This can be accomplished only through large openings, and these should always be used in all explorations.

Accurate studies of final results of brain operations are very discouraging. In a review by Taylor, of Philadelphia, of 63 cases, all are dead save five, and only two of these have reached the three-year limit.

Present methods of decompression are entirely inadequate. In the subtemporal operation the relief of pressure is not sufficient; as is proven in cases where great pressure is known to be present, such as in extensive fracture of the base of the skull. The old methods for relief of pressure depend for success upon the development of a hernia rather than upon the enlargement of the cranial cavity. In any operation for decompression where displacement of brain occurs, it must be in the direction where paralysis is impossible.

An incision is made from the mastoid to the crown of the head, and around to the mastoid on the opposite side. A bone flap is made of corresponding size, the base of which is on a line with the transverse sinus. Great care must be exercised in crossing the longitudinal sinus, also before breaking the flaps of bone, to thoroughly separate the sinus from the flap. If the tension be above the tentorium the dura can now be opened. If not, the transverse sinus is easily separated with a blunt instrument, and with gentle pressure the cerebellum retracts so that an incision can be made in the dura, over either or both lobes. In this way pressure can be relieved, whether the growth is above or below the tentorium, or whether it be on the right or the left side. The bone flap is replaced and held by two wire sutures, after the method of Hudson. The advantages claimed for this operation are:

1. Exploration and decompression are combined in one operation.
2. Relief of pressure, wherever the tumor be located.
3. Absence of paralysis.
4. Decompression is elastic, changing as pressure increases.

Pussep: Operative Treatment of Hydrocephalus Internus in Children (Operative Behandlung des Hydrocephalus Internus bei Kindern). *Arch. f. Kinderheilk.*, 1912, lix, 172.

By Surg., Gynec. & Obst.

This starts with an exhaustive review of the literature on the etiology and treatment of hydrocephalus. Then follows a report of 14 cases of 18 operated, the other 4 cases being eliminated because of insufficient data or other causes. Of these cases 10 were of chronic hydrocephalus, 1 of acute, and 3 of hydrocephalus due to brain tumor. The operation performed was undertaken with the idea of substitution for the aqueduct of Sylvius, since the closure of this canal seems to be the etiologic factor in most cases. A skin and bone flap is made in the occipito-parietal region. A double flap of dura mater is

made. The brain is punctured with a silver trocar down to the hydrocephalus cavity, the end of the trocar is then cut, bent, and fastened into the dura flaps. This allows drainage into the dura and subcutaneously. Of the 10 chronic cases only 1 died. The results here were quite good but depended upon the amount of damage done to the brain tissue. In the acute cases one must be careful. In the case here reported, blindness due to choked disc followed the operation. The result in the other three cases gave all that could be expected.

Pussep regards this operation in many cases as curative, in others as merely palliative. It is technically simple. In chronic hydrocephalus internus it produces some benefit provided the nutrition of the child is good. In acute hydrocephalus from meningitis, if brain compression is great, it not only aids the immediate symptoms but favorably influences the course of the disease.

C. G. Grulee.

Sanz: Cerebellar Tumor without Localizing Signs (Tumeur du cervelat sans symptoms de localisation; autopsie). *Rev. d. med. y cirugia practicas*, 1912, xxxvi, 324. By Journal de Chirurgie.

Sanz reports a case of cerebellar tumor in which all localizing signs were absent. The patient was a farmer, 21 years of age, with a negative past history. He dated his trouble from an accident in September, 1911, at which time he fell a distance of about nine feet, striking upon the right posterior aspect of his head. At the time no serious symptoms manifested themselves. A month later he began to feel pains localized in the right half of the head, and some time later he complained of vertigo, nausea, vomiting, trouble in hearing, and weakness in the limbs, especially on the right side of the body. From time to time he had attacks of diplopia. He was admitted to the clinic on January 13, 1912. At this time he had a convergent strabismus due to the paralysis of the right external rectus. The pupils were dilated and reacted sluggishly to light. There was considerable diminution of visual acuity, especially in the left eye. There was neuro-retinitis in the left eye, and papillary stasis in the right. The auditory apparatus showed no abnormalities. The tendinous and periosteal reflexes in the right arm were increased somewhat above the normal. Treatment with iodides seemed to cause some improvement. Cerebrospinal fluid was apparently normal. While the patient was under observation, a slight tremor of the left upper extremity was once noted, which however disappeared in a few days. There was some difficulty in walking. Visual acuity steadily diminished. On March 22 decompression was done, chiefly as a measure of relief for the severe headache. The patient died on the 24th. Autopsy showed that the lateral ventricles were greatly dilated. A tumor the size of a walnut was found occupying the white substance of the cerebellum and pressing upon the parts anterior to it. The peritoneum showed tuberculous nodules, and some ascitic fluid. The histological examination of the cerebellar tumor showed that it was a tuberculoma.

Salva Mercadé.

Kolbe: The Pituitary Gland During Pregnancy and After Castration (Untersuchungen von Hypophysen bei Schwangerschaft und nach Kastration). *Arch. f. Gynäk.*, 1912, xcviii, No. 3. By Surg., Gynec. & Obst.

Investigators are now agreed that the anterior lobe is glandular, consisting of epithelial cells, and the posterior is the infundibular or nervous lobe. The former has a connective tissue framework filled with groups of cells of various kinds. The latter cells have various characteristic staining qualities. Flesch divides them into two groups—chromophile and chromophobe. The former group is subdivided into eosinophile and cyanophile cells. The work of Erdheim and Stumme on the hypophyses of men, nullipara and pregnant women shows the gland to be richly supplied with blood-vessels and that the three components, eosinophile, basophile, and main cells, are present in varying proportions according to sex, pregnancy, etc. Thus, in the hypophysis of a man the eosinophiles predominate, especially in the posterior part of the anterior lobe. The basophiles are most abundant in the anterior part of the anterior lobe. The main cell (Hauptzelle) occurs less frequently in males and nullipara. This last named cell has a large, round nucleus, and the protoplasm stains very poorly. During pregnancy an increase in weight and size takes place in the glandular part and slowly recedes after birth. Histologically one finds a great increase in the number of main cells (Schwangerschaftszellen). The basophiles are decreased even for a number of years after delivery. In multipara these phenomena are more pronounced, especially in rapidly succeeding pregnancies.

The work of the author deals with the pineal gland of nulliparæ, multiparæ and castrated women, of guinea pigs, and of rabbits. Castration causes a cessation of the control over the gland by the ovary; pregnancy causes a hypofunction of the ovary and a specific action of the corpus luteum on the pineal body. In both cases there is an increase in the size of the gland, but during pregnancy the main cells increase in number and their protoplasm becomes stainable, whereas the increase after castration is due to an increase in the number of eosinoplutes. After each successive pregnancy the protoplasm of the main cells becomes more deeply stained.

A colored plate of four figures illustrated the observations of the author. L. W. Sauer.

Von Eiselsberg: The Removal of Tumors of the Hypophysis. *Arch. f. klin. Chir.*, 1912, lxxxi, 90. By Surg., Gynec. & Obst.

Von Eiselsberg reports in detail 16 cases of tumor of the hypophysis operated in his clinic. Among these were 3 males and 13 females, ranging in age from 18 to 53 years. Eight of the cases were of Fröhlich's type (typus adiposo-genitalis), 6 had

symptoms of hyperpituitarism (acromegaly), and 2 were of the combined hypo- and hyperpituitarism type. The most uniform symptoms present were the ocular disturbances, headache, and the excavation of the sella turcica shown by the X-ray picture.

Of the 16 cases operated upon, 4 died. Among the 12 recoveries, there were 7 adenomata of the hypophysis, 1 epithelial tumor, 1 perithelial sarcoma (or carcinoma), 1 angiosarcoma and 2 cysts. The period of observation was 3 months in 3 of the cases, 8 months in another, 1¼ to 2½ years in 6 cases, and 4 and 5½ years in 2 cases. The most noticeable benefit in all the cases was the cessation of the headache and the improvement of the vision where optic atrophy had not already occurred. The adiposity was reduced in 2 cases of Fröhlich's type. In one case the menses returned after being absent four years. Three cases of acromegaly were markedly benefited, showing the effect of the reduction in size of the gland. The only damage produced by the operation was the cosmetic result and fœtor ex nasi, which persisted in 3 cases.

The unfavorable results in the 4 cases were due to a foudroyante meningitis following the operation. Three of these cases showed an inoperable basal sarcoma which involved the hypophysis secondarily. Two of the cases had coryza (concealed by one patient) before the operation. Von Eiselsberg warns against operating in the presence of coryza.

The operative indications are chiefly for the relief of headache and the visual disturbance. Slight symptoms of acromegaly, adiposity, or impaired vision without changes in the eye-grounds are not sufficient indications for operation. Von Eiselsberg agrees with Cushing as to the advisability of doing sellar or subtemporal decompression in some cases.

The technique advised by von Eiselsberg is a modified Schlaffer operation. He regards the intracranial route recommended by Horsley, McArthur (temporo-frontal flap) Krause and Borchardt (frontal flap) as too difficult, with the added danger to the optic nerve, the vessels and the brain tissue. The transphenoidal route is to be regarded as the method of choice. Von Eiselsberg makes the following classification: (1) Temporary nasal flap method, the original Schlaffer operation, modified by Hochenegg, Bruns, Kanavel, Mixter, Ollier, Kocher and Chiari; (2) the sublabial incision, recommended by Halsted and Cushing; (3) the endonasal method successfully performed by Hirsch; (4) the palatine method of König, Löwe and Durante; (5) the pharyngeal method after suprahyoid pharyngotomy, as per Malgaigne and others.

Von Eiselsberg gives his technique as follows: Three days before the operation the patient receives 2 gm. urotropin daily. The coagulability of the blood is determined and calcium lactate given if it is delayed. The nose and throat are carefully examined. Anæsthesia with morphin and ether or Billroth's mixture. The operative field is sprayed with ½ per cent novocain (H. Braun), to stop hæmorrhage. Tamponade is accomplished by Bellocque's method. The incision is made along the left naso-labial groove up to the glabella, over the bridge of the nose to the right palpebral fissure. The nasal bone is cut through with hammer and chisel. The philtrum nasi is cut at its juncture with the upper lip. A large portion of the septum and vomer is detached with the nasal flap. The remains of the septum, vomer, rostrum and the turbinates are next removed.

Hæmorrhage is stopped with adrenalin and compression. The sphenoid sinus is now opened, its anterior and inferior walls removed and the cavity scraped out. The hypophyseal tumor is usually exposed at this stage, the dura is incised, and as much of the tumor as is thought advisable is removed with a sharp spoon (excochleation). After stopping the hæmorrhage, a cigarette drain is placed in the defect and fastened by a stitch around the left nostril. No tamponade is necessary. Finally the nasal cavity is cleaned out, Bellocque's tampon is removed, and the nasal flap sutured in its place. The cosmetic results of this operation are usually good. The time required is 1 to 1½ hours. Patients are left in bed 8 to 10 days in upright position.

The two other operations which von Eiselsberg recommends are Cushing's operation and Hirsch's endonasal method, which requires the services of an expert rhinologist. He recommends his operation because of the simplicity of the technique and the wide exposure of the field of operation, allowing the operator to observe and control each step.

ERWIN P. ZEISLER.

NECK

Allen: The Use of Tuberculin in Tubercular Adenitis of the Neck. *Penn. M. J.*, 1912, xvi, 216. By Surg., Gynec. & Obst.

The author finds that the primary source of this infection is usually through the tonsils, adenoids, or decayed teeth. These are removed or cared for in the beginning of the treatment. Caseous glands are allowed to break down spontaneously, and the cavities are lightly curetted. He recommends the injection of Koch's old tuberculin in serial dilution. The injections are given weekly, beginning with two minims of dilution No. 1, and increasing two minims at each injection. Olive oil and milk are used to build up the patient. The results in forty cases show that the glands decrease in size; the patients increase in weight; the general health improves materially; and old sinuses of the neck, as well as the resulting wounds from the spontaneous breaking down of the glands, heal promptly with its use. The treatment must be continued over a period of six to eighteen months.

Halsted: Vincent's Angina: Its Frequency and the Importance of Its Diagnosis; with Reports of Two Fatal Cases. *Laryngoscope*, 1912, xxii, 1372. By Surg., Gynec. & Obst.

Vincent's angina is the manifestation in the throat and upper respiratory tract of the infective

activity of the fusiform bacillus, associated with spirochætes and spirilla, the latter probably being but evolutionary forms of the former. These same organisms produce disease in all parts of the body, a pseudomembrane being produced on mucous membranes and abscesses in the deeper parts. Hospital gangrene and noma are due to these organisms, while many cases of phagedenic ulcer of the penis and genitalia and abscesses of the lung and spleen have been reported. A case of appendicitis followed by general pyæmia with multiple abscesses in all parts of the body, due to the fusiform bacillus, has recently been reported by Tunnicliffe. Many cases of bronchitis, laryngitis, broncho-pneumonia (the false membrane being the local lesion), and a few cases of mastoiditis, the fusiform bacillus being the pathogenic organisms in all of them, are found in the recent literature.

Vincent's angina, strictly speaking, is the disease as seen in the mouth, fauces, pharynx, and larynx. There are two distinct clinical types: one resembles diphtheria so closely that the best observers are likely to err in diagnosis, while the other type simulates so nearly the throat lesions of syphilis, the mucous patch, the tertiary ulcer, and even the initial sore, that unless one is careful he is likely to mistake an ulcer of Vincent's angina for a syphilitic ulcer. The disease is altogether more frequent than has been suspected. A positive diagnosis is easily made by bacteriologic examination of a smear taken from a gentle curettement or a swab, preferably the former, of the under surface of the pseudomembrane or of the ulcerated surface itself. It may not be found if the smear is from the outer surface of the pseudomembrane. The organisms do not grow on the ordinary culture media and hence are always overlooked by the bacteriologist in examining cultures for diphtheria, which accounts for the supposed infrequency of the disease.

It is probable that 20 to 25 per cent of cases, clinically diagnosed as diphtheria but reported by the bacteriologist as being negative, are Vincent's angina. The author reports two fatal cases of the disease. One occurred in a pregnant woman in whom the membrane occurred in the vagina and at the same time in the mouth and throat, a thick membrane covering all of the buccal and faucial mucous membranes, persisting for two months and producing profound toxæmia, the patient finally dying suddenly as soon as labor began. The second fatal case occurred in a young woman, the membrane covering the alveolar borders and the buccal mucous membrane, causing such pain that she could not swallow, and also a most profound toxæmia and secondary anæmia.

For the mild cases, those resembling syphilitic lesions, various topical applications have been recommended, especially tincture of iodine; but in the author's hands the best has been trichloracetic acid. This application is made to the ulcerating surface after the membrane has been removed and the ulcer has been cleansed with peroxide of hydrogen. Cocain is used to anæsthetise the ulcer before the trichloracetic acid is applied. Orthoform is prescribed to relieve the pain. Diseased teeth must be corrected. General tonic treatment is necessary. No specific treatment has yet been evolved, but it is hoped that a specific antitoxin may be produced. As salvarsan might possibly be efficacious, the author feels that he will use that remedy in his next serious case.

Patoureau: Contribution to the Study of Aberrant Goiters (Contribution a l'étude des goitres aberrents). *Thèse de Paris*, 1912.

By Journal de Chirurgie.

The article includes an exhaustive résumé of our present knowledge concerning aberrant goiters. The author also cites the following interesting case:

A man 28 years old, who denied previous illness, had a goiter for the past 12 years. This tumor had increased rapidly in size during the last 18 months. Upon examination, a spherical tumor appeared to occupy the median line extending from the cricoid cartilage to the sternum, definitely fluctuating and moving with the trachea upon deglutition. Apparently attached to the left margin of this tumor were two other quite small hard nodules the size of a nut. On the right margin another tumor was present, the size of a goose's egg, which gave the false fluctuation of a solid tumor. It was soft and did not move with the trachea. It pulsated as a result of lying upon several large arteries emanating from the external carotid. Under this tumor, two or three large nodules could be palpated.

Except for a slight hoarseness of the voice, probably due to compression or traction upon the recurrent laryngeal nerve, the patient presented no functional symptoms.

An operation was performed by Poisson. The large fluctuating tumor, which proved to be cystic and which contained a bloody fluid, and the two small nodules were removed through a median incision. The cyst was entirely independent of the body of the thyroid, which, forced upward, was atrophied to a fibrous consistency. A lateral incision along the anterior border of the sterno-cleido-mastoid permitted the removal of the tumor on the right side, which was composed entirely of parenchymatous tissue without cysts. During the operation it was noted that the wall of the trachea, instead of being soft, was thickened and extremely hard. Cure followed the operation.

J. L. Roux-Berger.

Schulze: The Effect of Operative Interference on Alimentary Glycosuria and Adrenalin Glycosuria in Basedow's Disease. *Beitr. z. klin. Chir.*, 1912, lxxxii, 207. By Surg., Gynec. & Obst.

Alimentary glycosuria occurs in about 25 per cent of cases of Basedow's disease. This diminished carbohydrate tolerance in Basedow patients was first noted by Kraus and Ludwig. Schulze has tested the sugar tolerance in 16 cases, both before and after

operation. The operation consisted usually of resection of part of the thyroid gland. As tests, 100 gm. of grape sugar were given alone, later followed by the injection of 0.3 mg. adrenalin. The urine was examined hourly for sugar. In 4 cases out of 16 Schulze found that the administration of 100 gm. grape sugar produced glycosuria within 1 hour. In all these cases the glycosuria disappeared after the operation. The intensity of the glycosuria was very variable in all cases. Adrenalin glycosuria occurred in 80 per cent of the Basedow cases. This also disappeared after the operation. The removal of part of the thyroid substance has therefore a decided effect on carbohydrate metabolism. The occurrence of glycosuria and its intensity may be used as a criterion of the severity of each case and of the severity of the reaction following the operation. The reports as to the effect of therapy on the carbohydrate tolerance in Basedow's disease are few in number. Hirschl, Schwarz, and Falta observed the disappearance of glycosuria following X-ray exposures to the thyroid gland.

The relation of the glands of internal secretion to carbohydrate metabolism is very complex. The glycosuria in Basedow's disease is partly thyreogenous in origin. It is well known that thyroid tablets produce glycosuria in normal persons, and may produce a real diabetes in a case of Basedow's, as Müller has reported. The intravenous injection of the juice expressed from a "struma" produces glycosuria in animals. The feeding of raw thyroid gland has the same effect. It has also been observed that thyroid feeding increases the tolerance for grape sugar in myxœdema.

The modern investigations on the interrelationship between the glands of internal secretion made especially by Falta, Eppinger, Rüdinger and others, have shown that the thyroid gland and the pancreas are closely related. Glycosuria may be due to a pancreatic insufficiency in some cases of Basedow's disease. The increased adrenalin reaction and the tendency to glycosuria occur only in a certain series of Basedow patients, which Eppinger and Hess have called the sympathicotonic forms. They are not found in the so-called vagotonic forms, in which we assume an increase in the internal secretion of the pancreas. The influence of the thyroid secretion in Basedow's disease appears to be twofold. It produces an increased tonus of the sympathetic system and it has a direct inhibitory effect on the metabolism of excess carbohydrates in the body. The latter action must be looked upon as a purely chemical action exerted by the altered thyroid secretion upon the products of the internal secretion of the pancreas. The animal experiments of Falta, Eppinger and Rüdinger have shown that normally the thyroid gland has an inhibitory effect upon the pancreas or its secretion. In Basedow's disease this is increased. According to Klose's investigation the thyroid secretion in Basedow's disease undergoes not only quantitative changes but also qualitative alterations which may account for the glycosuria. As Schulze has shown, the removal of parts of the thyroid gland leads to a high-grade diminution in the glycosuria, which is directly proportional to the amount of thyroid tissue removed. The severity of the glycosuria in Basedow's is proportional to the severity of the disease. Pettavel has described a case of Basedow's with alimentary glycosuria in which he found hydropic swelling of the islands of Langerhans in the pancreas. These changes are to be looked upon as the expression of an absolute insufficiency of the pancreas, which has been overstimulated by the abnormal thyroid secretion and lost its regulatory power in the carbohydrate metabolism. ERWIN P. ZEISLER.

Flesch: The Sugar Content of the Blood in Basedow's Disease and Thyreogenous Hyperglycæmia. *Beit. z. klin. Chir.*, 1912, lxxxii, 236. By Surg., Gynec. & Obst.

Flesch has estimated the sugar content of the blood in cases of Basedow's disease treated by operation. In none of the cases was a spontaneous hyperglycæmia observed. In 60.7 per cent of cases an alimentary hyperglycæmia was found. The latter was increased in the first few weeks following operative treatment and gradually came to normal.

The initial rise may have been due to the loss of blood. A similar increase was observed in a case of myxœdema in which fresh normal human thyroid was implanted intraperitoneally. The ingestion of thyroid tablets produced the same effect. This is to be looked upon as a thyreogenous alimentary hyperglycæmia, and is due probably to a condition of dysthyroidism. Presumably the products of the internal secretion of the thyroid act on the pancreas and liver, either directly or through the nervous system, lowering the limit of assimilation for carbohydrates and leading to an excess of sugar in the blood. Flesch also made the interesting observation that a high amount of sugar in the blood was associated with a low lymphocyte count, while an increase in the lymphocytes occurred with a decreased glycæmia. ERWIN P. ZEISLER.

Marimon: Case of Hydatid Cyst of the Thyroid Gland (Un cas de kyste hydatique acéphalocystique de la glande thyroide). *Rev. d. Cien. med. d. Barcel.*, 1912, xxxviii, 485. By Journal de Chirurgie.

Marimon has been able to find only 20 cases of hydatid cysts of the thyroid reported in the literature. His case was that of a boy of 14 years, who had noticed during the preceding two years the formation of a small tumor at the base of the neck, which was of firm consistency, not painful, and of the size of a walnut. This tumor grew rapidly in size during the first six months after its appearance, then remained stationary for a period, and in the last few months before admission had again begun to grow. It fluctuated. There was some fever. Several diagnostic punctures were made, and the diagnosis of tuberculous abscess reached. The tumor formed a swelling under the left sterno-cleido-mastoid which

divided it into two lobes. It was not attached to the skin, and could not be reduced by pressure. The head could be rotated freely and no painful cervical vertebræ could be made out by pharyngeal palpation. The tumor moved with the larynx. Exploratory puncture by the author yielded a purulent fluid of colloidal appearance. Staphylococci were found in this fluid, but no tubercle bacilli. Thyreoiditis, or rather strumitis, seemed excluded because of the absence of any pericystic reaction or any of the signs of an inflammatory process. When the cyst was opened at operation, by a small incision just outside the sterno-cleido-mastoid, pus gushed forth under high pressure, and as soon as it had been evacuated a characteristic hydatid membrane was recognized. The cavity was touched with 5 per cent zinc chloride. Microscopic examination of the cyst wall showed the characteristic striation. No daughter cysts were found. SALVA MERCADÉ.

Kolb: Thyrogenic Bone Tumors. *Beit. z. klin. Chir.*, 1912, lxxxii, 331. By Surg., Gynec. & Obst.

Kolb reports a case of sarcoma of the parietal bone in a woman 75 years old, who was operated for goitre 7 years before. The tumor was extirpated and showed typical thyroid structure. At the autopsy metastases were also found in the lungs. About 59 cases of metastatic thyroid bone tumors were reported up to 1911. Nine of these were located in the parietal bone. The metastases occurred most frequently in the cranial bones and in the vertebral column. Trauma and thyroidectomy played an etiologic rôle in 9 cases. The metastases occurred by way of the vascular system, possibly in some cases by retrograde transmission. The primary growth in the thyroid is frequently latent and clinically may be unobserved. The diagnosis cannot be made positively except where multiple bone tumors plus a struma are present. The course of these thyrogenic bone tumors is prolonged and they may last years. In general a solitary tumor in the bone, if accessible, should be operated on radically as early as possible. Multiple tumors may be treated with the X-rays. Recurrences occur years after removal of the tumor. Exitus in Kolb's case occurred the day after the operation, probably from variations in the cerebral pressure.

ERWIN P. ZEISLER.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Thorne: Theories with Regard to Secondary Growths in Carcinoma of the Breast. *Brit. M. J.*, 1912, ii, 1745. By Surg., Gynec. & Obst.

Paget in 1889 raised the first doubt as to the truth of the embolic theory of metastatic formation and called attention to the rarity of metastases in the lungs, whereas in the liver they were about four times more common. He concluded that certain organs had a predisposition to become seats of secondary growths. He pointed out the frequency with which certain bones were involved. Handley thinks the spread of cancer is due to permeation of the lymphatics by cancer cells. Perilymphatic inflammation tends to inhibit the growth of these cells, even after they have broken through the lymphatic boundary. Again, it may be that the cancer cells are so pressed upon in the distended lymphatics that they become degenerate, and when freed are incapable of growth. Handley says that perilymphatic fibrosis as a curative process is defective. If these cells rupture the lymphatic before an adequate perilymphatic inflammation has been established metastases will arise. Handley describes the spread of cancer in the parietes by permeation of the lymphatic system as similar to the spread of an invisible annular ringworm. According to Handley's theory, bone should be attached at the point where it is nearest to the deep fascial lymphatic system, and he says this is true in the femur and humerus, in the former metastatic growths occurring first at the base of the great trochanter, and in the latter at the insertion of the deltoid.

According to Stiles the lower and inner margin of the breast lies over the sixth costal cartilage; that is to say, this part of the mammary circumference is only about an inch from the interspace between the ensiform cartilage and the seventh costal cartilage. At the tip of the ensiform cartilage the transversalis fascia is hardly recognizable as a distinct layer, and the parietal lymphatic plexus is separated from the subperitoneal fat simply by the linea alba. It is not surprising if, through this obviously weak spot, cancer frequently reaches the peritoneum before it has succeeded in reaching the pleura, even at points directly subjacent to the primary focus. Handley emphasizes the necessity of careful preoperative examination to exclude epigastric and pelvic metastases.

He also says that in removal of the breast for carcinoma the site of growth should be made the center of a circle from which the deep fascia is to be removed. An annular incision marking out the 10-inch circle of deep fascia to be removed is carried down to the muscles through the deeper subcutaneous fat close to the base of the skin flaps. The anterior layer of the rectus sheath on both sides of the midline should be removed.

Sir George Beatson does not agree with Handley in toto and thinks there is more to the question than this permeation theory alone. Cheatle puts three questions in regard to the posterior spinal root ganglia: (1) Are the inflammatory changes within the posterior spinal root ganglia in any way connected with the origin or spread of cancer? (2) If they are, did they exist before the cancer began, and hence had they anything to do with the genesis

or point of incident? (3) If they occurred secondarily to the cancer, had their presence anything to do with the spread of that disease?

M. S. HENDERSON.

Schubert: Displacement of the Trachea in Thymus Hyperplasticus. *Beit. z. klin. Chir.*, 1912, lxxxii, 269. By Surg., Gynec. & Obst.

Schubert reports a case of thymus hyperplasticus in which a displacement of the trachea was observed in the X-ray picture. A child of one year was brought to Rehn's clinic (Frankfurt) with a fractured arm. For 8 months the child had suffered from attacks of suffocation with cyanosis and a hoarse stridor, brought on by crying. One month previously the child had been treated for bronchitis and rickets. The child showed manifest signs of rickets — wide-open fontanelles, a rosary, enlarged epiphyses, etc. The axillary and inguinal glands were enlarged. The tonsils were not markedly enlarged. The X-ray showed a mediastinal shadow which was especially manifest on the left side, and a marked displacement of the trachea to the right was clearly seen. An operation was undertaken to relieve the attacks of suffocation. The left lobe of the thymus weighing 20 gm., was successfully removed. The child's general condition improved markedly after the operation, and the cyanosis and stridor did not return. Previous to the operation the blood picture showed a lymphocytosis reaching 75 per cent. This came down to 50 to 60 per cent after the operation. The thymus showed the usual histologic findings of thymus hyperplasticus.

Schubert places this case in the category of status thymolymphaticus. He assumes that the mechanical action of the enlarged organ is of great importance and may explain the cases of sudden death as Grawitz originally supposed. Paltauf considered the thymus hyperplasia as only part of a general lymphatic hyperplasia with hypoplasia of the aorta, and frequently associated with rickets. Death was supposed to be due to sudden cardiac weakness. Recent investigations have shown that the thymus is to be regarded as an independently functionating organ, as shown by its effect on the blood picture and on the bone changes. The thymus plays an important part in the symptom-complex of the status lymphaticus of childhood. From the standpoint of practical surgery it is of importance to know whether the enlargement of the thymus or its mechanical pressure is the cause of this condition.

The diagnosis of thymus hyperplasticus is based chiefly on the X-ray findings. Höchsinger investigated cases with symptoms of tracheal stenosis in childhood and observed a mediastinal shadow which he interpreted as the thymus. Since then many radiologic observations of the mediastinal region have been made. We know to-day that a definite extension of the median shadow to the left side makes a diagnosis of thymus hyperplasticus very probable in children. A shadow to the right is not convincing. These findings agree with the clinical observation that the left lobe of the thymus is usually enlarged. Höchsinger reports 4 cases in which the contours of the right side were normal while there was a definite extension to the left.

In the differential diagnosis in children, enlarged bronchial glands must be considered first. They usually produce a shadow on both sides and are asymmetrical. The thymus shadow is more like that of a tumor mass. In adults aneurysms must be differentiated chiefly by their pulsation. Intrathoracic goitres give a cup-shaped shadow. It is important to remember that a thymus hyperplasia can coexist with a Basedow's struma. Mediastinal tumors and tumors of the hilus of the lung are difficult to interpret on the X-ray findings.

An important X-ray sign of thymus hyperplasticus is the deviation of the trachea. This sign was first emphasized by Curschmann in aneurysms. Pfeiffer demonstrated the displaced trachea with the X-ray. The trachea is also frequently pushed aside by strumæ, especially the intrathoracic forms. Wherever the pressure is enough to produce a stenosis, the X-ray may show a slight ampullary dilatation above the point of stenosis. The tracheal displacement may account in part for the sudden death in cases of enlarged thymus, analogous to the so-called "Kropftod."

ERWIN P. ZEISLER.

Roberts: Early Signs of Mediastinal Tumors. *Lancet*, Lond., 1912, clxxxiii, 1714. By Surg., Gynec. & Obst.

Under this title are included malignant growths involving any of the mediastinal structures, enlargement of the intrathoracic lymphatic glands from any cause, and inflammatory swellings. All these tumors manifest themselves by symptoms, due to pressure on adjacent structures. The author bases his remarks on 36 personal cases, all showing evidence of intrathoracic pressure. Of these, 14 were cases of malignant growths of glands or of the lung, 8 were cases of malignant disease of the œsophagus subsequently affecting the surrounding structures, 3 were cases of enlarged tubercular glands, 4 were cases of non-tubercular lymphatic affections, 3 were cases of mediastinitis, and 4 were syphilitic in character. The symptoms met with in these cases were pain, dyspnœa, cough, dysphagia, wasting, anasarca, vomiting, hiccough, and palpitation. Wasting was, of course, common to all the malignant cases, and dysphagia was almost, but not altogether, limited to cases of disease of the œsophagus. The relative frequency of the remaining symptoms may be inferred from the fact that pain was the most prominent symptom in 11 cases, cough in 8, dyspnœa in 7, anasarca in 6, vomiting in 2, and hiccough in 1. Twenty-two out of the 36 cases were malignant in character.

It follows that the prognosis of mediastinal tumor, speaking generally, must be very bad. Of the remaining cases, one died from mediastinopericarditis and two from lymphadenoma, but the remaining 11 cases recovered more or less complete-

ly from their symptoms, and the degree of recovery seemed to vary inversely with the length of time the patient had been affected. It follows, therefore, that early diagnosis of the presence and cause of intrathoracic pressure is particularly important in those cases where therapeutic treatment may be possible; i.e., when the cause is specific, inflammatory, or tubercular in nature.

He takes up in order and reports cases under each heading as follows: 1. Venous obstruction. Under this heading he refers to one vein in particular which is not frequently affected and is apt to be overlooked in this connection, viz., the vena azygos major. 2. Respiratory obstruction. This may occur alone in early cases, but generally when the patients come under observation it is found in association with venous obstruction. 3. Pressure upon nerves. In many instances, especially in the case of slowly growing tumors, pressure upon nerves causes the first indication of trouble. The nerves most apt to be involved are the phrenic, the intercostals, the vagus or its recurrent branch, and the sympathetic. Pain, however, is the most frequent evidence of pressure on the intrathoracic nerves, and owing to the intercommunications between the phrenic and sympathetic and the intercostal and cervical nerves the areas to which the pain may be referred are numerous and extensive. 4. Lastly, one other occasional early symptom of malignant growths of the lower mediastinum is pericarditis. A pericardial rub in old people is almost as diagnostic of malignant growth as it is of rheumatism in the young, or of Bright's disease in middle age. The diagnosis of mediastinal tumors must be made from the subjective symptoms and evidence of pressure on neighboring structures.

Treatment. If there be any possibility that the tumor is specific in character, antisyphilitic remedies should be vigorously tried. Even without a positive Wassermann reaction, and especially if the evidence is in favor of the trouble being mediastinitis, the same treatment should be adopted. In cases of anterior mediastinitis, the possibility of surgical interference by means of trephining the sternum should be borne in mind. In cases diagnosed as tubercular, general hygienic measures should be adopted and the use of tuberculin in appropriate cases should be considered. In the great bulk of cases, however, their malignant nature does not hold out any hope of beneficial treatment.

D. C. Balfour.

PHARYNX AND ŒSOPHAGUS

Meyer: Cancer of the Œsophagus from the Standpoint of Intrathoracic Surgery. *Surg., Gynec. & Obst.*, 1912, xv, 639. By Surg., Gynec. & Obst.

Although Meyer has so far shared the fate of all other surgeons who have resected cancer of the œsophagus intrathoracically, he having no recoveries to record, he nevertheless briefly publishes the histories of four patients in whom he performed this operation, and urges others to do likewise in order to aid in determining the causes that are responsible for the failures. In his opinion they are principally as follows:

1. The general condition of the patient is usually too much reduced when he reaches the surgeon.
2. The advanced stage of the disease, the local growth often having transgressed the border lines of the organ in which it started, involving organs in its immediate neighborhood, e. g. pneumogastric or sympathetic nerves, aorta, or lung.
3. The magnitude of the operation.
4. The extreme thinness of the wall of the œsophagus in the human being.

He believes the ideal operation for cancer of the œsophagus to be, of course, resection immediately followed by œsophagogastrostomy. However, this kind of operation is not often feasible, inasmuch as circumscribed carcinomata of the œsophagus are rare, and the stomach in man cannot be lifted more than about 4 inches above the diaphragm. Furthermore, this mode of procedure is feasible only if the tumor involves the lower portion of the œsophagus or cardia. In the majority of cases the carcinoma involves the greater portion of the tube. Too large a piece of the latter has to be resected to make œsophagogastrostomy possible. All that can be done is to excise the tumor, invert, and properly secure the ends. If the patient desires to regain the ability to swallow his food, a new œsophagus has to be made by means of œsophagoplasty.

At the German Hospital a cancer of the œsophagus is attacked wherever it is found, i. e., also if it be situated behind and above the aortic arch. This can be done properly only by first getting the scapula out of the way, best by means of Schede's incision as originally devised for thoracoplasty, and the addition of a number of intercostal incisions. Multiple incisions do not add to the seriousness of the operation further than the few minutes required for closing them.

Sauerbruch reaches the upper part of the œsophagus by means of an osteoplastic resection of the upper ribs and clavicle, from the right side. He excludes all cases with adhesions. Those behind and below the aortic arch are not properly accessible from this entrance.

It has been Meyer's hard luck that all his cases proved to be of the infiltrating type. Several inches had to be removed, and in each instance the œsophagus had to be pulled from behind the aortic arch in order to enable him to do the work properly.

Three patients died the so-called vagus death, due to interference with the pneumogastrics; the fourth died from compression of the lung in consequence of a sero-sanguinolent effusion. Here the patient had experienced no shock from the transposition of the œsophagus, as the pneumogastrics in the upper part were not involved.

In view of the fact that an anæsthetic administered by an expert can be borne even by weak patients, and further, that very little blood is lost

in these operations, Meyer believes that the cause of death, soon after operation, must lie in the handling of the pneumogastrics. He therefore advises that they be exposed in their entire course and blocked by cocainization below the aortic arch (according to Reich and Crile) and not above the same — if pneumogastrics are cocainized above the aortic arch the patient cannot live. He furthermore urges that these nerves never be bluntly interfered with, but that the one involved be dissected out step by step from its adhesions, under the guidance of the surgeon's eyes. For this purpose the additional intercostal incisions are required.

In view of the fact that the patients reach the surgeon — at the present time, at least — in a state of great emaciation, Meyer has decided to operate in two stages whenever the disease is located in the middle or upper third of the œsophagus, viz.: (1) thoracotomy; palpation of the tumor; division of the œsophagus below and proper attendance to either stump; (2) Schede's incision; transposition of the tumor in front of the arch; resection; safe closure of proximal stump.

Immediate drainage of the thorax is necessary after the first as well as second stage of the operation. At the German Hospital this is done with the patient left under differential pressure for the first 12 or 15 to 20 hours. Sutures in the œsophagus, in order to hold properly, will often penetrate the lumen, on account of the thinness of the human œsophagus. It has been found best to strengthen the proximal stump with the help of a free fascia transplantation, after a single inversion, a method which Meyer has repeatedly tested with success in the dog. It has been thought that after double inversion such fascia transplantation would also be unnecessary in the human being, as it had proven in the dog. A recent experience of the author's, however, has shown the error of such an assumption and the necessity of fortifying in man even a doubly inverted proximal stump with a piece of fascia, making the latter surround the stump.

Of course, the surgeon's work would be greatly simplified in every respect if operation could be performed early in these cases, which in turn means the necessity of early diagnosis, and efforts should be principally directed to this end. With the help of the delicate touch of Schreiber's sound, stereoscopic X-ray pictures, and œsophagoscopy, the attainment of this point should not be difficult, if the profession as well as laity once begin to gain confidence in this branch of thoracic surgery. But to gain this confidence we must be able to point to at least one case of recovery after resection of the œsophagus for carcinoma.

Menard: Gastrotomy for Foreign Bodies in the Œsophagus (De la gastrotomie pour les corps étrangers de l'ésophage). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

Gastrotomy for foreign bodies in the œsophagus is equally applicable to foreign bodies of the lower part of the tube. The author reviews the different therapeutic measures for removal of foreign bodies and shows their inefficacy and their dangers in certain cases. Propulsion is a dangerous method, except in instances of small alimentary bolus.

Extraction through the natural passage is the method which is most employed and which can be most recommended, but it becomes dangerous when one attempts to extract bodies which are fixed and situated in the lower portion of the œsophagus. Therefore, it is often not efficacious, whether it is the forceps or the basket which is used (120 cases of failure in 167 attempts, Martin).

Œsophagoscopy, the method of choice, demands the skill of an experienced operator, and failures are not of rare occurrence even to these. It is a contraindicated method in cases of advanced age and in those having emphysema, cardiac affections, and atrophic cirrhoses with œsophageal varices. Basing his conclusions on these considerations, the author shows the advisability of gastrotomy. He recommends median, supraumbilical laparotomy; the stomach is opened by a parallel or perpendicular incision. The examination of the cardiac end may present some difficulty, but the orifice will appear if one pushes the stomach neither too high nor too low according to the method of Plugren, guiding oneself by previous introduction of a sound through the mouth. The attempt of extraction of the body is made with the fingers, or one can use the forceps, or finally, according to the method of Lajarre, by using retrograde catheterization. Œsophagoscopy can also be used. The article is concluded with the description of four cases. J. L. Roux-Berger.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Ertaud: Contribution to the Study of Epigastric Hernia; Its Possible Coexistence with Ulcer and Cancer of the Stomach (Contribution à l'étude de la hernie epigastrique: La coexistence possible avec l'ulcère et le cancer de l'estomac; indications qui en decoulent). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

The author takes up the subject from the historical aspect and points out that the digestive disturbances and pains which may accompany epigastric hernias are now understood to be often due to accompanying gastric affections such as ulcer or cancer, rather than — as was formerly supposed — to the involvement of the stomach or intestines in the hernial sac, or to reflex phenomena due to strangulation of vascular or nervous tissues in the hernia. The normal anatomy of the linea alba is taken up from the point of view of the etiology and the pathogenesis of this affection. The author em-

phasizes under this heading its greater frequency in the male, the importance of familial and individual predisposition, and the significance of congenital malformations (faulty union and anomalous development of the recti) in infantile hernia. He then takes up the rôle of strain, traumatism, pregnancy, emaciation, and gastric affections. He admits that, except in the cases where there is laceration of the aponeurosis, trauma alone cannot produce hernia without a predisposing factor of weakness in the wall. He lays stress upon the importance of herniating lipomata and the rôle played by the preperitoneal fat.

In the following chapters he takes up the pathology and symptomatology of this disorder, and proposes to classify these hernias clinically, as painful or painless. The painless hernias often pass unrecognized and yield only physical signs. The symptoms in the cases of painful hernias often seem to be due to coexistent organic diseases of the stomach, such as ulcer or cancer. The German authors Capelle, Ury and Lindenstein have laid stress upon this point. The epigastric pain is often very variable in intensity and in radiation. It may lead to vomiting, with constitutional symptoms of defective alimentation.

In the differential diagnosis the gastric crises of tabes, the dyspeptic ulcer and cancer of the stomach, and umbilical hernia should be considered. It often proves a matter of great difficulty because of the vagueness of the symptoms. Moreover, the coexistence of two conditions is frequent. The author therefore recommends that in the case of a painful epigastric hernia, not only should a radical cure of the hernia be undertaken by surgical means, but at the time of operation a methodical exploration of the stomach should be carried out. Fifteen cases of epigastric hernia with coexisting ulcer or cancer of the stomach are cited at the end of the article. L. CAPETTE.

Firket: Primary Epithelial Cysts of the Peritoneum (Des kystes épithéliaux primitifs du péritoine). *Arch. d. méd. exp. et d'anat. pathol.*, 1912, xxiv, 607. By Journal de Chirurgie.

Firket reports the case of a man 57 years old, with a negative past history, in whom during a herniotomy a cystic growth was observed on the peritoneum of the hernial sac. During the following year the patient's abdomen gradually enlarged and became tense and painful; there was dullness and fluctuation in its lower portion. The swelling and pain were more marked in the left flank, and here palpation revealed a fluctuating tumor. There was no fever. An incision along the external border of the left rectus showed that the omentum, the mesentery and the parietal peritoneum were studded with innumerable small cysts whose contents were clear. A small piece of omentum was removed; the wound could not be closed because of the extreme distention, and it was necessary to pack the orifice. The patient recovered and stated that he was relieved, but there was no change in the physical signs.

The omental cysts held a clear liquid containing mucin and but very little albumin. The cyst walls were lined with large low epithelial cells, the innermost layer of which bore the cilia. The external layers of connective tissue were not differentiated from the surrounding omental tissue.

Five similar cases have been reported by Henke, Nager and Ernst, Himmelheber and Kirchberg, and Ziegler. The author considers that these tumor cysts arise from the peritoneal epithelium. They may develop independently of one another at distant points on the serous membrane. They are not to be considered as malignant tumors, though certain solid tumors of the peritoneum may arise from them. P. MASSON.

Ransohoff: Fat Hernia. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Seven cases were reported by Ransohoff in this paper. According to his conception, certain characteristics accompanied the primary fat hernia. (1) A true fat hernia was a protrusion of a preperitoneal fat mass or lipoma through one of the ordinary hernial apertures. It followed the course pursued by an ordinary hernia. (2) A peritoneal process within such a hernia was always difficult to find because of its small lumen. Such a process, when present (in a minority of his cases), was secondary to the fat hernia and probably resulted from traction. The ordinary contents of a hernia were not found and could hardly enter into the narrow serous tube within the fat mass. (3) The onset of a fat hernia might be sudden, like that of the ordinary type of hernia with preformed sac. In three of the cases recorded the history of sudden onset was very clear, and the proportion of cases too large to be charged to inaccuracy of observation on the part of the patient. (4) The diagnosis of fat hernia was far from easy. Although not reducible, they were capable of a seeming reduction in a fair proportion of cases. (5) An impulse on coughing could usually be obtained, since the hernia could receive the brunt of the increase of intra-abdominal pressure like an ordinary reducible hernia. (6) In very rare instances symptoms of strangulation might result from torsion of the fat hernia. (7) The treatment of fat hernia differed in no way from that of the ordinary type. It was probable that these cases would only be recognized as fat hernias during the operation; therefore measures for radical cure would be instituted, such as those in vogue for the ordinary forms of hernia. E. S. TALBOT, JR.

Halpenny: Internal Hernia; with a Report of a Case of Mesocolic Hernia. *Canad. M. Ass. J.*, 1912, ii, 1094. By Surg., Gynec. & Obst.

Varieties of internal hernia are: (*a*) left duodenal; (*b*) right duodenal; (*c*) mesocolic; (*d*) hernia into the retrocolic fossa; (*e*) into the intersigmoid fossa; (*f*)

into the foramen of Winslow; and (*g*) into the lesser sac through an abnormal opening.

Left duodenal hernia occurs into the fossa of Landzert which is situated to the left and some distance from the duodenum. The fossa is formed by a fold of the peritoneum raised by the inferior mesenteric vein. The orifice of the sac looks downward and to the right. This is the most common location of retroperitoneal hernia.

Right duodenal hernia occurs into the fossa of Waldeyer, which lies within the cavity formed by the arch of the superior mesenteric artery. The orifice looks upward and to the left.

Mesocolic hernia occurs into the mesocolic fossa, which is formed by a fold containing the left colic artery.

The retrocolic fossa lies behind the cæcum and the lower part of the ascending colon.

The intersigmoid fossa is formed by the two layers of the mesocolon of the sigmoid flexure, and this fossa occurs in from 70 per cent to 80 per cent of all bodies examined by Treves and Moynihan. But according to Moynihan only two cases of hernia which were authentic were reported up to 1906.

Hernia through the foramen of Winslow is more frequent than many of the above mentioned varieties. Moynihan has reviewed twelve cases from the literature.

Hernia through an abnormal opening into the lesser sac has been reported in twelve cases.

Case report. Patient had stomach trouble for fourteen years. Trouble came on in attacks, during which time there would be a great deal of pain and discomfort. Between the attacks she would be free from pain and could eat anything desired. The attacks steadily increased in frequency, until a year or so before admission to the hospital. She was at no time free from distress.

The chief complaint on admission was burning pain, which came on one to one and one half hours after eating. This was accompanied by eructations and was relieved by food taking. Vomiting was a prominent symptom and was present almost from the beginning. The character of the vomitus had gradually developed into the type found where there is retention in the stomach and often contained blood. At the time she entered the hospital she would vomit three undigested meals each evening. Nothing had ever been noticed by the patient which would make her suspect blood in the stools.

Examination of the stomach contents twelve hours after a meal showed: undigested food, free Hcl, none; lactic acid, a trace; total acidity, 10. Blood examination showed: hæmoglobin, 60 per cent; reds, 5,500,000. No occult blood found in the stool. Palpation of the abdomen showed tenderness over the whole pyloric region, but no mass could be felt. There was apparently an obstruction to the outlet of the stomach, but no definite diagnosis could be made.

Operation showed a perpendicular tear in the transverse mesocolon and the gastrohepatic omentum. Through this all the small intestine had passed from behind forward, except the proximal three inches of the jejunum and the terminal six inches of the ileum. The gut was all replaced and the aperture closed. An old healed ulcer of the duodenum was found, but this produced no obstruction. A fibrous membrane extended from the gall-bladder to the ascending colon, and this was carefully divided between ligatures. The patient made an uneventful recovery. J. H. Skiles.

Parker: Tuberculous Mesenteric Glands Simulating Appendicitis. *Boston M. & S. J.*, 1912, clxvii, 915. By Surg., Gynec. & Obst.

Primary tuberculosis of the mesenteric glands is to be observed clinically as an exception, perhaps as a rarity, but when it does occur it is so alarming in its manifestations that it deserves serious consideration.

These diseased glands may occur anywhere in the mesentery, but the usual site is the ileo-cæcal region. It occurs as an isolated gland or group of glands with no other foci elsewhere demonstrable. It seems to be a disease of childhood and early adult life.

Diagnosis is very difficult and at times impossible, as the disease follows no definite symptom-complex. It occurs either with moderate indefinite pains pointing to no particular abdominal organ or appears, and with a certain preference, under the aspects of acute or chronic appendicitis or ileus.

It occurs with or without a palpable tumor. When a tumor is present a diagnosis is easier, since a palpable abdominal tumor in a child, remaining constant under all conditions and not fæcal, is almost certain to be tubercular glands. Also in adults, multiple tumors in the region of the small intestine, if leukæmia is ruled out, are almost pathognomonic. These glands may cause peritonitis, adhesions and intestinal obstruction or they may be present without associated conditions.

Two cases are reported: First, a case of isolated tuberculosis of mesenteric glands beginning with symptoms of an acute recurrent appendicitis and progressing along the lines of an intestinal obstruction. The disease had caused by direct contact, irritation of and adhesion to a contiguous loop of bowel, with resultant obstruction. In the second case the disease manifested itself as a slowly developing, moderately severe appendicitis. Operation revealed a large caseous gland without appendicitis or peritonitis.

Out of 39 cases reported in the literature, in a large percentage a diagnosis of appendicitis or ileus was made before operation and the true condition recognized only after the abdomen had been opened.

Laparotomy is always indicated. General opinion is that, where possible, the glands should be removed. Extreme care must be taken not to infect the peritoneum. Removal intact is ideal, but where not possible curettement and suture with or without drainage should be performed. The mortality for all types collectively is under 15 per cent.

Lund: Tuberculosis of the Mesenteric Glands Simulating Appendicitis. *Boston M. & S. J.*, 1912, clxvii, 918. By Surg., Gynec. & Obst.

General enlargement of the mesenteric glands is common in children and is frequently noted in laparotomies for any cause. Localized tuberculosis of the mesenteric glands most frequently occurs in the glands draining the ileo-cæcal coil. The glands become enlarged and go through the regular process of caseation and sometimes of suppuration. Tuberculosis of these glands may occur without any evident focus of infection in the mucous membrane of the ileum, cæcum or appendix. It is believed that they must become infected by the passage of the bacilli directly through the bowel wall into the lymphatics. They may be associated with a normal appendix or with an appendix acutely or subacutely inflamed. Their development is attended by repeated attacks of pain, vomiting, temperature and localized tenderness very closely simulating appendicitis. The tender mass caused by the glands simulates an appendix abscess. As to differentiating these cases from appendicitis, it is fair to say that in the majority of cases the tenderness is a little nearer the median line, muscular spasm is not a prominent symptom and may be absent, and the patient does not appear quite as ill as an ordinary appendicitis patient with the same temperature. To all surgeons, however, who are aware of the extensive pathological processes which may go on within an appendix without the patient appearing ill, these diagnostic points do not seem of much value. If those glands go on to caseation and suppuration abscesses may form and require evacuation. Rupture of the gland may cause a general tuberculous peritonitis. A few cases are reported in the somewhat scanty literature on the subject in which obstruction has been caused by adhesion of a coil of the intestine to the inflamed gland.

The author's treatment, in every case, has been removal of all the glands which are noticeably enlarged, especially those which have gone on to caseation. They may ordinarily be shelled out by careful dissection without damage to the mesenteric vessels. Only a few veins have to be tied. An opening through the mesentery of the small intestine is not infrequently made. This may easily be closed by sutures.

The removal of the glands has a most happy effect, all patients recovering. Drainage is not required unless there has been extensive caseation and an abscess.

It is difficult to determine the cause of the acute attacks of pain. They are not due to appendicitis, for that is not present. They are probably due to an acute infection complicating the glands which are already tuberculous. The pain has been called peritonismus, but that does not explain it in any way. The cases are interesting, and although it is not of great practical importance to differentiate them from acute appendicitis, it is important in delicate children to think of this, especially in the cases of so-called "appendicitis" without much muscular spasm and with tenderness which is far toward the median line.

Morris: Increase of Newer Abdominal Surgery Due to Increase in Toxic Disturbances. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

The essayist pointed out that cobweb adhesions in the attic of the abdomen belonged to the toxic group of manifestations, and that we were learning a great deal concerning how these toxic impressions lead to the formation of adhesions in cases without an acute inflammatory onset. In some instances bacteria penetrated the wall of the bowel. The endothelium was shed as a result of their presence, and the lymph which exuded became disorganized and formed permanent adhesions that were common in the region of the cæcum, largely in the region of the sigmoid and largely in the region of the pylorus and the bile tract. Why were we having more abdominal surgery relating to Lane's kink, to Jackson's membrane, to cobwebs in the attic of the abdomen, than we ever had before? For the answer, we should turn to the statistics which were being collected by the Equitable Assurance Association of New York. This company found a rapid increase in insanity and a rapid increase in the number of cases of arteriosclerosis. They found a rapid increase in the number of cases which belonged to the stage of decadence. When there was arrested development as a result of the decadent change that was now taking place in all the civilized nations in our present cultural period, physical defects or stigmata, as classified by psychiatrists, were increasingly in evidence.

What were we going to do about it? Surgery had a place in a number of this group of cases and could afford much help, but the other part of the question related to a better development of individuals in the race. It was a question which was not under the control of the surgeon, but belonged to the physiologist and to the eugenist; and surgery, he believed, was very important in that it would require a higher degree of skill on the part of the surgeon, decade after decade, and would require him to be more alert and better able to analyze cases than he had been able to do before. There would be more Jackson's membranes, more Lane's kinks, and more adhesions than before, due to the increasing toxic conditions which belonged to the decadent stage of our cultural period. E. S. Talbot, Jr.

GASTRO-INTESTINAL TRACT

Licini: The Influence of Gastric Juice upon Living Organic Tissue. *Beitr. z. klin. Chir.*, 1912, lxxxii, 377. By Surg., Gynec. & Obst.

It is held by some that the action of gastric juice upon the body tissues is one of normal digestion, while others hold that no specific action takes place, but that the action is one of maceration. The author has made a number of experiments on dogs which have led him to the following conclusions:

1. All living organic tissue is as resistant to the action of gastric juice as the stomach wall itself.

2. Only a superficial maceration takes place with accompanying inflammation.

3. Serous membranes are also macerated, and are therefore no protection for any organ.

CARL BECK.

Thompson: Fatal Hæmorrhage from Erosion of the Gastroduodenal Artery by Duodenal Ulcers. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

The essayist had seen two fatal cases of bleeding from duodenal ulcers in spite of the operation of gastro-enterostomy. In both cases the ulcer was situated on the posterior surface of the first portion of the duodenum, and in both the hæmorrhage which proved fatal came on at a time when it looked as if the patients would recover from the operation. The first patient died 34 hours after the operation, with all the symptoms of concealed hæmorrhage; but as no autopsy was allowed one could only surmise from the position of the ulcer that the gastro-duodenal vessel was eroded. The second patient lived 42 hours after the operation.

In discussion, Winslow reported a case of complete anterior dislocation of both bones of the forearm at the elbow. E. S. TALBOT, JR.

Paterson: Is Gastric Ulcer a Frequent Precursor of Cancer? *Lancet*, Lond., 1912, clxxxiii, 1710. By Surg., Gynec. & Obst.

The author doubts the stated frequency of carcinoma developing on gastric ulcer. He says the problem is a difficult one and a dogmatic position is impossible. He considers the question from both the clinical and pathologic sides. The two fallacies on the clinical side are (1) the assumption that we can diagnose a gastric ulcer from the clinical history alone; i.e., because a patient with cancer of the stomach gives a long history of dyspeptic trouble, we are not justified in assuming that the symptoms have been due to gastric ulcer. (2) The assumption that carcinoma is never protracted. He reports a case alive and well four and one half years after a gastro-enterostomy for irremovable carcinoma, from which tissue was removed showing spheroidal-celled carcinoma. The alternative that carcinoma is grafted on ulcer is that simple ulcer and carcinoma may occur in the same patient. On the pathologic side he quotes the statistics of Wilson and MacCarty, stating that 71 per cent of the specimens of cancer of the stomach obtained in the Mayo clinic showed evidences of an old ulceration. He says the weak point of their argument is the absence of proof that the ulcer in which cancer cells are present was ever anything else but malignant. Again he says that death from cancer following gastro-enterostomy for ulcer is a rare event. His own experience is that 1 per cent of his patients, on whom gastro-enterostomy is performed for simple ulcer, die later from carcinoma. He thinks the question is unsettled and believes that in the meantime the verdict should be "Not proven."

D. C. BALFOUR.

Jacque and Woodyatt: The Peptolytic Power of Gastric Juice and Saliva, with Special Reference to the Diagnosis of Cancer. *Arch. Internal Med.*, 1912, x, 560. By Surg., Gynec. & Obst.

The literature on the Neubauer and Fischer glycyltryptophan test for peptolytic power in gastric juice is reviewed and the principles underlying it discussed. In order to ascertain the causes which have led to conflicting opinions in the literature concerning the value of this test, the writers devise a quantitative procedure by which the peptolytic power of gastric juice and saliva is measured and expressed in numbers. A 2 per cent solution of Witte peptone is mixed in definite proportions with gastric juice or saliva and a 10 cc. sample subjected to formalin titration at once. After 24 hours at 37° C., a second titration is made. The difference in the two titrations in terms of $\frac{N}{10KOH}$ and reckon for 100 cc. gastric juice is termed the "peptolytic index."

Examinations were made of 40 normal cases, 10 hyperacidity cases (benign), 10 subacidity cases with HCl present (benign), 16 cases with HClO; and 23 proven cases of cancer with high and low acidities.

Saliva and gastric juice were in several instances examined in the usual way and also filtered (Berkefeld filter) and handled afterwards with aseptic precautions. The principal conclusions are: Saliva, normal gastric juice and that of benign subacidity cases, when filtered only through paper and covered with toluene according to the usual custom, frequently but not always show some peptolytic power. Superacid gastric juices show less. Passage of the material through a Berkefeld filter eliminates this peptolytic power. It is due to bacteria — not to body enzymes. In 87 per cent of the cancer cases the peptolytic indices were 2 to 10 times as high as the maximum figures obtained in any of 76 non-malignant cases. Filtration lowered but did not eliminate this. In cancer cases there is a filterable peptolytic agent besides the bacteria.

For ordinary clinical purposes it is recommended that a filtered 2 per cent solution of Witte peptone, 2 parts, to gastric juice, 1 part, be used in place of the glycyltryptophan solution "Ferment Diagnosticum," and that exclusion of bacteria by filtration through a Berkefeld or similar filter with subsequent asepsis be substituted for antisepsis by toluene, which is not certain to control bacterial action. Splitting can then be detected by the usual bromine test for free tryptophan or measured by titration as preferred. The test has definite diagnostic value in developed cases of cancer. The writers point out that in a few of their positive cases, but only in a few, 4 out of 20 was the diagnosis in doubt by ordinary methods.

Gibbon: Partial Gastrectomy in a Case of Multiple Carcinoma of the Stomach. *Am. J. M. Sc.*, 1912, cxliv, 781. By Surg., Gynec. & Obst.

Multiple primary malignant growths are sufficiently rare to warrant publication of the following case. The history in this case was practically negative until June, 1911, when the patient first developed gastric symptoms. At that time he was suddenly seized with an attack of vomiting. The vomitus was black and the patient thought it contained blood. Similar attacks occurred repeatedly for some months, during which time he rapidly lost weight and color. In the four weeks prior to admission to the hospital he had lost 12 pounds. An interesting point is that the patient never had any symptoms of indigestion. The slight discomfort which he felt showed no regularity as to the time of its occurrence, his chief complaint being vomiting, which did not occur every day, but he often vomited in the evening food which he had eaten at breakfast. Free hydrochloric acid was absent and no lactic acid was found upon examination of stomach contents.

These with other symptoms warranted a diagnosis of probable gastric cancer. Skiagraphs showed marked irregularity in the outline of the greater curvature, both at about the middle and near the pylorus. Operation was undertaken January 27, 1912. A large round nodular mass about the middle of the greater curvature was found, which involved both anterior and posterior walls.

About one inch from the pylorus on the greater curvature was another hard mass with an excavated center. There was no pyloric obstruction and no marked enlargement of glands. The diseased portion of the stomach was resected and a posterior gastro-enterostomy was made, catgut and linen sutures being used.

The patient's convalescence was satisfactory excepting a slight infection, and he was discharged from the hospital March 7, 1912. In three weeks after his discharge he gained 12 pounds and was able to eat all kinds of food. The patient died on July 23, 1912, of general debility, but without a recurrence of any gastric symptoms whatever. His only complaint was weakness in the legs, and it was thought for a time that he might have a spinal metastasis, but this could not be determined as no autopsy was made. The pathological report of specimens showed two ulcers on the mucous surface, the edges of one being raised and quite uneven. Internally the elevated zone dipped down abruptly to the floor of the ulcer.

HISTOLOGY

Sections from the margin of the smaller ulcer show an infiltration of round cells with a moderate increase of intertubular connective tissue. Immediately below this is a rather abrupt transition to a new growth, this new growth being made up of tubules very irregular in size and shape, and lined by columnar epithelial cells, mostly in single layer, but in some tubules stratified.

Sections from the wall of the larger ulcer show a transition from mucosa into a tumor mass which extends below the muscularis without involving the overlying mucosa, the contrast between the construction of the two being very striking.

DIAGNOSIS

Both ulcers show carcinoma, which in each case is in direct relation with the gastric mucosa. The structure of each, as above described, appears to justify the diagnosis of adenocarcinoma of the smaller ulcer and medullary carcinoma of the larger.

The author then reviews the meager literature, speaking particularly of multiple malignant growths reported by Fenwick. When two cancers of the same structure are found in the same organ, the occurrence may usually be attributed to transference by contact or to autoinfection. It may be that the latter explanation would apply to this case. The clinical history does not bear out the fact that we have a malignant change taking place simultaneously in two ulcers of the stomach. H. A. Potts.

Pisek and LeWald: Pyloric Obstruction, with Comparative Study of the Normal Stomach of Infants. *Arch. Pediat.*, 1912, xxix, 911. By Surg., Gynec. & Obst.

This paper strongly advises the use of the X-ray in determining the ability of the stomach to force food through the pylorus. For this purpose bismuth was given and an X-ray picture of the stomach was taken at various intervals after feeding. The article is accompanied by 22 cuts of X-ray pictures of the stomach. The food may be observed passing under normal conditions in infants into the duodenum within a minute or two after ingestion. This should be of great value in conditions which show some form of pyloric obstruction. Pyloric spasms can be differentiated from pyloric stenosis by this means. C. G. Grulee.

Pelissier: Duodenal Ulcer Obliterated by Adhesions of the Gall-Bladder; Gastro-enterostomy; Secondary Duodenal Perforation (Ulcère du duodénum oblitéré par adhérence de la vésicule biliaire; sténose pylorique. Gastro-entérostomie; perforation duodénale secondaire). *Bull. et mém. d. l. Soc. anat. d. Paris*, 1912, xiv, 371. By Journal de Chirurgie.

The author operated a case which he had diagnosed as gastric ulcer with pyloric stenosis. In the course of the gastro-enterostomy, it was observed that the pyloric region was surrounded by adhesions and the pylorus showed a white cicatricial zone. Operative recovery was at first excellent, but on the third day, without any apparent peritoneal reaction, the patient died. At autopsy the peritoneal cavity was found filled with a foul liquid containing food particles. On the anterior aspect of the first portion of the duodenum, there was present a large perforation cut out as with a stamp through the cicatricial tissue. On the dependent surface of the gall-

bladder a round area, delimitated by a thin line of broken adhesions, corresponded to the shape of this duodenal perforation and could be exactly superimposed upon it. It was evident that the primary duodenal perforation had been plugged by the gall-bladder, and that operative manipulation, which had torn apart the old adhesions, was responsible for the peritonitis. L. CHEVRIER.

Struthers: Perforated Duodenal Ulcer. *Edin. M. J.*, 1912, ix, 505. By Surg., Gynec. & Obst.

In an excellent analysis of 27 personal cases, Struthers shows that the histories fall into three groups — 63 per cent with chronic dyspepsia for months or years; 20 per cent with only occasional gastric disturbances, in no way characteristic of duodenal ulcer; and 15 per cent previously in perfect health. This shows that while a previous history of dyspepsia is helpful in diagnosis, a negative history does not rule out perforation. He does not agree with Moynihan in the latter's statement that "no chronic ulcer of the duodenum exists without betraying its presence by symptoms . . . of the clearest significance."

There was no premonitory sign or symptom of imminent perforation, but the diagnosis after the onset of peritonitis was easy, except that in three cases the physical findings pointed to an appendiceal attack. When the differentiation between the two conditions is impossible, Struthers opens through the right rectus below the umbilicus and explores the appendiceal region first.

In four cases the improvement in the few hours before admission to the hospital made the diagnosis of a severe lesion doubtful. The history, suggestive of an ulcer with severe initial pain, decided him to operate, and perforations were found in each case, although the only preoperative sign present was slight tenderness and moderate resistance over the upper half of the right rectus. In the later stages of the illness the origin of the peritonitis is largely a matter of guesswork before operation.

Stress is laid on complete muscular relaxation at operation, chloroform being preferred as an anæsthetic, while the previous use of morphin is discouraged as likely to diminish the activity of the respiratory center.

In all cases the ulcer was on the anterior wall of the duodenum within one and one half inches of the pylorus, the largest diameter being from two to six mm. in length. The size of the ulcer bore no relation to the elapsed time since perforation, large openings being found within a few hours and vice versa. Food material in the abdomen was so rare that the amount of actual leakage was considered to be slight, probably because of arrested peristalsis following perforation.

In Struthers' opinion, excision of the ulcer is unnecessary, infolding to secure broad peritoneal approximation being enough and closure with interrupted No. 2 or 3 plain catgut stitches being preferred to the use of silk. If the patient's condition permits, he believes a posterior gastro-enterostomy should be done, the resulting rest promoting healing of the ulcer and tending to prevent recurrences. Practically all of 17 cases in which gastro-enterostomy was done are now without digestive symptoms, while two out of three in which a gastro-enterostomy was not done still have indications of a duodenal ulcer. Relapse is what he expects without gastro-enterostomy, and for this reason its performance is advised when possible, although he states that it is not an indifferent operation, and should not be done merely because it helps recovery, but only if it be a permanent benefit to the patient. Struthers believes that flushing the abdominal cavity with saline is probably harmful, and he closes the wound but provides suprapubic drainage.

In this series of 25 operated cases, there was a mortality of 20 per cent, those that recovered being operated within 24 hours of the onset. Sixteen had a posterior gastro-enterostomy done, and of those, 14 at least have had no relapse, the other two having been lost sight of. Of the three in which only infolding of the ulcer was done, two have had a return of symptoms after some months.

Five patients died, all of a general peritonitis; in none was gastro-enterostomy done, their condition being considered too bad to justify the prolongation of the operation. E. K. ARMSTRONG.

McClannan: Intestinal Obstruction, with a Clinical Study of 181 Cases. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

McClannan stated that the form of operation required in any given case must depend on the nature of the obstruction and on the presence or absence of complications. Thus, we grouped the operations performed into three classes, namely: relief of the obstruction, excision of intestine, and enterostomy.

In order to judge the efficiency of any of these operations it was necessary that the procedures be compared with regard to the stage of the disease at which the operation was performed. This was the only logical basis for study of the treatment of obstruction, and avoided the confusion of many classes as to causation, differences in position of the obstruction, and variations in the completeness of the occlusion. Each of these factors altered the rapidity of development and the duration of the three stages of the disease, consequently a study of intestinal obstruction from the point of view of the symptomatology and treatment of these stages balanced the relation of the various factors and made the comparison of operative statistics possible.

Of 34 patients treated in the first stage, all recovered. Of these, 12 were relieved of their symptoms by enemas and purgatives. The other 22 were operated upon. In 15 the obstruction was relieved; resection was performed in 3 cases; enterostomy with short-circuiting and enterostomy with relief of obstruction, once each; simple enterostomy was done twice. Relief of the obstruction, therefore,

was the best operative procedure in cases treated during the first stage. When provision had been made for a delayed enterostomy, this was the best procedure in post-operative obstruction, probably because opening the previously brought up loop gave no operative shock.

Sixty-six patients were operated upon in the second stage; 55 recovered, and 11 of these died as a result of a second operation or some complication developing later than one week after the original operation. The operations performed were as follows: relief of obstruction, 44, 6 fatal; short-circuiting, 2; excision, 14; enterostomy, 4; enterostomy with other operations, 15. One patient was relieved by an enema. Gangrene was present in 10 cases: 2 were treated by anastomosis and excision; 8 patients recovered; 6 were resected. Relief of the obstruction seemed the best operation in the second stage, provided gangrene had not developed. In the presence of gangrene, resection was the best operation, provided the constitutional symptoms were not pronounced. In the latter event, enterostomy should be added to the resection; or if the condition of the patient was grave, the loops might be brought out of the abdomen and packed off with gauze, with an enterostomy above the obstruction.

Eighty-two patients were operated on in the third stage; 52 died. Relief of the obstruction was done in 22 per cent of the cured and in 34 per cent of the fatal cases. Enterostomy and relief in 22 per cent of the cured, in 8½ per cent of the fatal. Simple enterostomy in 45 per cent of the cured, in 32 per cent of the fatal cases. Enterostomy with other operations in the remaining cases—3 cured and 9 fatal. Resection was done in one fatal case and extrusion in 2 others. One patient was relieved by an enema, and 5 died without operation. Gangrene was present in 15 cases: 2 cured and 13 fatal. In both the cured cases enterostomy and excision were done.

In the third stage enterostomy should be done, either alone or in connection with the other procedures. In the non-gangrenous cases enterostomy was done in 77 per cent of the cured and in but 41 per cent of the fatal cases.

Bloodgood, in discussion, said that the essayist was the first to publish a large number of cases showing the importance of the effect of washing out the stomach and of giving enemas to aid in the early diagnosis of intestinal obstruction, a thing always neglected outside of the hospital, and often neglected in the hospital.

Brown said the importance of draining the distended loop of bowel above the obstruction could not be too strongly accentuated. A number of years ago, in a paper he read before the Mississippi Valley Medical Association, he reported a series of cases in which he resected the gangrenous gut and described a method of draining the loop of intestine above the obstruction, namely: to cut across the bowel, introduce a tube into the bowel, and while an assistant was handling the bowel above, the resection was made without losing any time. The use of the stomach tube and rectal tube, both before and after operation, was of exceeding importance.

Stone stated that with the use of eserin and enemas, properly given, he had never seen a purgative necessary. Since he had been using that combination he had never found a secondary operation necessary where the conditions were not most formidable where that simple method of treatment was properly tried.

Mixter said that in looking back on the fatal cases of intestinal obstruction it would be found death had occurred in those cases where the intestine had not been emptied, or where an anastomosis had been done immediately, and the septic contents of the occluded intestine had been poured into the lower intestine. Abbe pointed out that the intestine below was starved and ready to take up the material poured down from above, and in that way a rapid and fatal sepsis ensued.

Charles H. Mayo stated that in the last year, in cases of intestinal obstruction, they had in four cases, through the appendicostomy incision, been able by drainage to overcome the immediate obstruction.

Ransohoff called attention to the use of the X-ray in locating the obstruction in acute cases. Outside of hospitals this was out of the question, but when a patient was brought into the hospital it took but a short time to get an X-ray picture, and in three recent cases the obstruction was located by this means.

Morris stated that for a year or more he had been using injections by rectum of bismuth solution, also using it by the stomach as far as possible, and then employing the fluoroscope, and in this way determining definitely the seat of the obstruction.

Royster said that if there was retention of scybalous masses, and the bowel was gripped on something and could not release itself, if the gut was much distended and the patient was vomiting, with very little or no pain, we could give a few doses of eserin, say one fourth of a grain of the salicylate, every two or three hours until two or three doses were given, to be followed by an alum enema. If the patient was in great pain we could give $\frac{1}{100}$ gr. of hyoscin, to be followed two hours later by an enema. With this treatment he had found some cases did not need operation at that time and operation could be safely done later, while other cases did not need operation.

Finney said he had used the appendix after the method mentioned by Mayo in eight or ten cases of intestinal obstruction, and in his experience it did all that Mayo said it did, and it was a very valuable aid in those cases where the obstruction was low down.

The indiscriminate use of eserin was followed by disastrous results. His attention had been called to the fact by Abel, of the pharmacological department of Johns Hopkins, that eserin under ordinary circumstances had a marked depressing effect. In

one case it apparently had a very alarming effect. In one or two others it was followed by marked symptoms of depression, but its withdrawal was followed by decided improvement.

Hall emphasized the point made by Dr. Brown in reference to draining the intestine above the seat of obstruction in those cases where it was thought best, at the time of the operation, to resect the gut. He had used the method advocated by Dr. Brown in a number of cases with satisfactory results. As to the use of eserin, he had seen a number of cases in which there was depression following its administration, and he usually gave it in no larger doses than one fortieth of a grain.

Winslow said that neither eserin nor any other agent was going to relieve a patient when the intestine was mechanically obstructed, and there was nothing to do but to operate. Eserin could only do good in cases in which the bowel was not mechanically obstructed.

Bovée had been using eserin after operation as a routine in every case ever since Craig, of Boston, brought it to the attention of the profession. It never failed to produce a bowel movement in a case in which there was no intestinal obstruction.

Crawford had personal knowledge of a patient who was given one fiftieth of a grain of eserin, by mistake, and who was greatly prostrated by it, so that for two or three hours death seemed imminent. However, the patient did not die. Another patient, a clergyman, to whom he administered one fortieth of a grain of eserin on the second or third day after the operation, told him he felt as though a stick of dynamite had exploded within him.

Milne, of London, said it was very fashionable in the London Hospital to give eserin, but now it was only the extreme cases of distention that responded to the use of eserin. They did not give more than one hundredth of a grain at a dose, and they did not give more than three such doses. He could not say that in any of the cases they had noticed any particular collapse from the use of the drug.

Elbrecht related some experiments with eserin on normal individuals. He found that small doses had absolutely no effect in many instances, whereas larger doses gave prompt action of the bowels. He found it was usually twenty minutes to half an hour before it acted. E. S. Talbot, Jr.

Miller: Acute Invagination of the Ileum Secondary to Sarcoma of the Small Intestine. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

In a search through the list of reported cases Miller found only a few instances similar to his own case in which sudden acute symptoms gave the first warning of intestinal trouble. Only three such cases were found in Moynihan's list. In the other 37 cases, symptoms of transitory abdominal pain, occasional vomiting attacks, and nausea preceded the recognition of the growth from a few weeks to over three years. If there could be a cardinal symptom it would be the presence of a tumor. It was present in over 90 per cent of cases when brought for examination or operation. It was always present in children and nearly as constant in adults. More than half the cases were reported in patients over 40 years of age. Cachexia was only marked in children, except in the late stages. Fever was often present, as may be expected from the large percentage in which ulceration occurred. Constipation was not a reliable symptom, although often present. Diarrhœa was noted in a few. Three cases had been reported as occurring in the ileum, years after severe attacks of typhoid fever, and Nothnagel reports an instance of sarcoma that developed from tuberculous ulcerative scars. In 30 out of 46 instances the growth was single; in 16, multiple. It was curious to note the frequency of adhesions between the bladder and involved coil of intestine. In 46 cases, Lecène reports adhesions in 12, 7 of which were instances in which the bladder was the involved structure. E. S. Talbot, Jr.

Horsley and Coleman: Experimental Devascularization of Intestines with and without Mechanical Obstruction. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In the joint paper by Coleman and Horsley they reported twelve experiments, all on dogs, done under full anæsthesia, in which segments of intestine from the lower ileum, varying from two to five inches, were devascularized by cutting the attachment of the mesentery close to the bowel. In all except one the omentum was wrapped around the devascularized segment. In five instances the segment was obstructed by tapes at each end. Two of these dogs died from gangrene and perforation of the loop. One died after three days, without perforation; one lived thirteen days, and the other lived fourteen days. In seven dogs a loop of intestine was devascularized without being obstructed and the omentum wrapped around the segment. None of these dogs died as a result of the operation. The authors concluded that either no toxic substance was formed in the devascularized loop or segment of intestine which was unobstructed, or else this substance, if formed and excreted, was not absorbed by the normal mucosa. They emphasized the fact that in dogs, at least, a loop of bowel when separated from its mesentery and unobstructed might be properly nourished by wrapping the omentum around it. E. S. Talbot, Jr.

Gregor: Intestinal Lesions Due to Contusions of the Abdomen. *N. Y. St. J. M.*, 1912, xii, 727.
By Surg., Gynec. & Obst.

The object of this paper is to call attention to the relative frequency of intestinal rupture after abdominal contusions, especially in rural and agricultural districts. Three types of injuries were described as producing these lesions: First, that produced by a rapidly moving object affecting a circumscribed

area of the abdominal wall. Second, crushing injuries when the intestines were caught between the contusing force and some bony surface. Third, the tearing accident produced by a fall. In the first class, the resulting rupture was described as a blow-out. The elements entering into the mechanism of the blow-out were: high velocity, a small point of impact, the surprising of the abdominal muscles and an inflated condition of the bowels.

In diagnosis, the primary shock was to be disregarded, as that depended upon injury to the abdominal sympathetic system and not to the intestinal lesion. But shock, continuing or developing after four or five hours, with increase of pulse rate, associated with increase of abdominal pain and tenderness, with nausea or vomiting and, most important of all, with muscular rigidity of the abdominal wall, was sufficient evidence to justify an exploratory incision. Illustrative cases are given in the paper.

Thornburgh: Multiple Gunshot Wounds of Intestine without Perforation of Lumen. *Ann. Surg.*, Phila., 1912, lvi, 886.
By Surg., Gynec. & Obst.

A private of the 30th Infantry attempted suicide, March 29, 1912, by shooting himself in the abdomen with .30 calibre Army Springfield rifle. The muzzle was held against abdomen outside of the clothing 5 cm. to the left and 2 cm. above the umbilicus. Entrance wound 3 cm. x 2 cm. in diameter. Exit wound 1 cm. diameter, at level of umbilicus and directly above the left posterior superior spine of the ilium.

A laparotomy was done less than an hour after injury was received. Belly was full of blood, requiring ligation of 12 large mesenteric vessels; 35 cm. of ileum was found denuded of all peritoneal and most of its muscular coat. Mesentery of same completely destroyed. Numerous injuries to descending colon and mesentery, but lumen of gut not perforated at any point.

On account of severe shock, resection of ileum was out of the question. The omentum was brought down and a pocket formed, completely covering injured bowel and mesentery. This was fastened by interrupted sutures, replacing outer two coats of ileum and both layers of mesentery. Uninterrupted recovery.

Van Bisselick: Acute Intestinal Obstruction Caused by a Polycystic Kidney (Occlusion intestinale aiguë par un rein polykystique). *J. d'Urol.*, 1912, ii, 812. By Journal de Chirurgie.

Bisselick reports a case with bilateral cystic kidneys, which, following hæmorrhage into one of these kidneys, showed symptoms of acute intestinal obstruction.

The patient was a man of 55 years. Upon admission to the hospital he showed signs of ileus. There was abdominal distention and vomiting; and a feeling of pressure in the left side with extreme tenderness in this region. The left flank was occupied by a tumor which was very painful on pressure. The overlying abdominal wall was rigid, and on percussion this area was found dull from the costal margin to the iliac fossa. Cæcostomy was performed, after which the symptoms of obstruction disappeared. It was then possible to make out a fluctuating tumor in the left flank. This tumor gave lumbar ballottement. Aspiration of the tumor was performed and a yellowish, rather turbid fluid, showing traces of blood, obtained. The presence of peristaltic waves which started at the cæcum and reached as far as the epigastrium led at first to the diagnosis of an infected neoplasm of the descending colon with secondary retroperitoneal abscess. But inflation of the colon was found to diminish considerably the area of dullness over the tumor, and the conclusion was arrived at that the latter was retroperitoneal and probably renal. Ureteral catheterization showed that the right kidney was functioning, though the urea elimination was diminished. A left lumbar incision showed a cystic kidney, in which there had been a hæmorrhage that had colored the contents of the cysts. During manipulation a large cyst ruptured. The capsule of the kidney was then incised, the clots removed, and the cavity cleaned out. The patient made a good recovery, and the lumbar wound healed. Palpation of the left hypochondrium had shown the existence of an enlarged kidney on this side. The author's conclusion is that the extreme distention of the kidney, due to the hæmorrhage, had caused intestinal obstruction by pressure on the descending colon. He had been unable to find a report of a similar case.

J. Tanton.

Bonneau: Tuberculosis of the Small Intestine (Tuberculose de l'intestin grêle). *Paris chir.*, 1912, iv, 900. By Journal de Chirurgie.

The case was that of a man of 29 years, formerly operated on for appendicitis, who on admission complained of attacks of abdominal pain with a sensation of transverse subumbilical pressure. Peristaltic waves and borborygmus were observed. The temperature reached 104°. There was well marked meteorism. The attack lasted three days and was terminated by the passage of large, green, fetid stools and gas from the intestines. After two or three days of quiet, a similar attack would follow. The patient had lost 12 kilos in seven months of this illness. His abdomen was slightly distended, though elastic. Below the umbilicus there was a sensitiveness to pressure, and at certain points a feeling of doughy consistency. Rectal examination revealed soft adherent masses above the prostate. A diagnosis of tuberculous peritonitis with intestinal stenosis was made. At operation it was found that some loops of the small intestine were encased in inflammatory tissues which at certain points had greatly constricted their lumina; the sigmoid and colon were not much involved; the cæcum was definitely infiltrated and thickened, but not stenosed;

several large glands were found in the mesentery. Bonneau resected 50 cm. of the small intestine, including the points of stenosis. Recovery without complications. Two months later the patient was still free from the attacks, though unable to work because of weakness and the continuance of diarrhœa. The author makes no claim for a cure, but considered the operation indicated as a palliative measure of value in a hopeless case.

J. L. Roux-Berger.

Wiener: Gangrene of Ileum Complicating Appendicitis. *Ann. Surg.*, Phila., 1912, lvi, 900. By Surg., Gynec. & Obst.

Report of a unique case of gangrene of the ileum, at some distance from the ileo-cæcal valve, with normal ileum intervening between the gangrenous portion and the cæcum, and with the cæcum normal. Operation during the fourth attack of appendicitis disclosed turbid fluid in the peritoneal cavity. The appendix had almost completely sloughed away. A loop of small intestine was found adherent to the abscess cavity, completely denuded of its mesentery, the vessels of which had thrombosed. On the eighth day a fæcal fistula developed, and the loop of ileum was found completely gangrenous in the wound. One hundred and thirty-eight days after the first operation a side-to-side ileo-colostomy was done for a persistent fæcal fistula. In spite of this, although most of the stool came away per rectum, a fæcal fistula still persisted. One hundred and seventy-eight days after first operation an extensive intestinal resection was done. The ileum distal to the point of ileo-colic anastomosis was excised, together with the cæcum and part of the ascending colon. The open ends of ileum and colon were closed with three layers of sutures. About ten inches of ileum and twelve inches of large intestine were removed. There was a slight temporary fistula at the site of the sutures in the ascending colon. The wound finally healed completely, nine months after the original operation. Eighteen months later the patient was still in good health and had two movements of the bowel daily.

Singer: On the Secretory Activity of the Stomach in Chronic Appendicitis, with Gastric Symptoms. *Lancet*, Lond., 1912, clxxxiii, 1711. By Surg., Gynec. & Obst.

It is now generally admitted that there is a definite association of chronic appendicular disease with gastric ulcer. The author has recently had the opportunity of making very detailed analyses of a series of 300 cases presenting gastric symptoms. Most of these cases were subjected to laparotomy. He has investigated the chemical side of the question and tabulated his results in detail. His experiments and analyses make it appear likely that the situation of an ulcer in the pyloric region or duodenum may itself be a factor in the increase of hydrochloric acid secretion. A gastric or duodenal ulcer regarded in this light thus becomes not only a result but also a cause of hyperchlorhydria. His conclusions are as follows: 1. Chronic appendicitis has frequently been found in association with gastric symptoms. 2. When this association occurs, a gastric or duodenal ulcer may or may not be present, but in all cases the gastric juice has yielded abnormal analytical results. 3. The abnormalities may consist of hypersecretion or of hyposecretion both of chloride and pepsin, of the presence of a peptolytic ferment, and of the elevation of the "nitrogen factor." 4. These abnormalities can best be explained as due to toxic substances which act on the stomach and on the appendix. 5. Removal of the appendix does not always relieve or improve the symptoms. D. C. Balfour.

Reder: A Sign of Diagnostic Value in Obscure Cases of Chronic Appendicitis Elicited by Rectal Palpation. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In the more obscure forms of chronic appendicitis, where other points had failed, Reder stated he had been able to make an absolute diagnosis through a point located in the first (sigmoidal) portion of the rectum. These cases belonged to a class whose symptomatology did not invite attention to the appendix region on account of the total absence of focal symptoms. In many of these cases pressure at McBurney's point had not given the reflex pain that was expected and usually obtained in a lesion of the appendix of this character, while pressure at Morris' point had proven equally as negative. An absence of these reflexes was usually sufficient to dismiss the thought of an existing appendix lesion. The point in the rectum, however, had invariably given a positive reaction in the presence of a chronically diseased appendix. The part of the rectum concerned in this examination was the first portion. It began at the sacro-iliac synchondrosis, and usually the left side was entirely covered with peritoneum and had a mesorectum which gave that portion of the bowel a certain amount of mobility. This mobility was of some value in the examination. Within the lumen of the bowel, at the junction with the sigmoid about 3½ or 4 inches above the margin of the anus, there existed aggregations of circular fibers that formed a valve. This valve was constant, was known as the valve of O'Beirne, and varied but little in its distinctive circular characteristics. This valve served as a landmark, and was an important factor in the examination.

In making the examination to reach the points, the patient was comfortably placed upon his back on the examining table, with both legs flexed. The index finger, well lubricated, was introduced into the rectum, and a search made for O'Beirne's valve. This valve was sometimes reached with some difficulty, especially when it was located high or when the examining finger was rather short. It was absolutely necessary that the valve be located. Its recognition was readily perceived, the sensation imparted being very similar to that which the

examining finger experiences when introduced into the os uteri during the first stage of labor. In size, he had found the valve to vary, being in some as large as a ten-cent piece, and in others as large as a quarter.

The valve having been located, the finger was hooked into it and gentle traction made upon the structures to test the mobility of that portion of the rectum. The tip of the finger was allowed to rest within the lumen of the valve, and the patient asked if he experienced any pain. The answer was usually "No." Should there be any pain, it was generally referred to the sphincter area of the rectum. By allowing the finger to rest for a short time this pain would subside. After being assured by the patient, of the total absence of pain, the tip of the finger was gently pushed upward toward the right iliac fossa, when, in the event of a lesion of the appendix, the finger would touch a point beyond the valve that would cause the patient great pain. As a control maneuver, a similar point might be touched by sweeping the examining finger toward the left inguinal fossa, usually with negative results. The accuracy of the diagnostic value of this point had been verified in some 200 cases. The patients comprising this series gave a period of time when their health was not good ranging from six months to twelve years. After removal of the chronically diseased appendix the patient was fully restored to health in from three months to two years.

E. S. Talbot, Jr.

Ewart: The Preoperative Diagnosis of Appendicitis: Demonstration of a New Method by Dorsal Examination. *Brit. M. J.*, 1912, ii, 1741.
By Surg., Gynec. & Obst.

The author believes that if this method of dorsal percussion were used, some fatal cases of abscesses would be correctly diagnosed and successful operation performed. There is normally a dull area beneath both sacro-iliac joints due to the iliac blood-vessels. If a retrocæcal abscess or retrocæcal appendix be present, the dullness on the right side will be increased. M. S. Henderson.

Case: X-Ray Studies of the Ileo-Cæcal Region and the Appendix. *Am. Quart. Röntgen.*, 1912, iv, 93. By Surg., Gynec. & Obst.

The ileo-cæcal region was examined radioscopically and radiographically after the bismuth meal and following a barium sulphate clysma. The injection method was found to be especially valuable to show the mobility and relations of the colon, as well as incompetency of the ileo-cæcal valve. The meal proved more serviceable in determining motility and points of adhesion, and also to show the appendix.

The author found incompetency of the ileo-cæcal valve to be present in 33 cases out of 200 examined. In some of these it was associated with perityphlitic adhesions; in some overdistention of the cæcum seemed to induce it, while in others no cause could be assigned.

Ordinarily the bismuth meal starts to pass through the ileo-cæcal valve in about four hours, and the greater part of it is in the cæcum and ascending colon in six hours. Where stasis occurs, due to adhesions, the ileum becomes distended proximal to the stenotic part. The latter is found to be firmly fixed and cannot be displaced by changes in position of the patient or by palpation. This stasis in the ileum may, by dragging on the mesentery, cause a duodenal stasis as well. An obstructive lesion of the colon may be responsible for interference with the onward course of the bismuth in the ileum.

Regarding the appendix, the author has seen over 60 cases in which this organ became filled with bismuth for a period varying from a few hours to many days. The size of its lumen, its shape, its position, and whether it is fixed or movable can be ascertained. Poor drainage, as evidenced by retention of bismuth over a period of several days, would seem to indicate potentiality for danger and argue for removal of the organ.

Defects in the filling of the cæcum with extensive fixation and constriction of the terminal ileum, especially if associated with pulmonary tuberculosis, is very suggestive of tuberculosis of the ileo-cæcal region. Malignant tumors may give much the same picture.

Adhesions between the cæcum and other parts of the colon may cause considerable distortion and interference with motility. Even the sigmoid has been found thus attached to the appendix in one case and to the cæcum and gall-bladder in another.

A cæcum mobile and atomicum may be readily diagnosed by the Röntgenologic method. Fistulous tracts leading to the cæcum may be traced by filling them with Beck's paste and simultaneously injecting the colon with a bismuth suspension.

Adolph Hartung.

Keith: Functional Nature of the Cæcum and Appendix. *Brit. M. J.*, 1912, ii, 1599.
By Surg., Gynec. & Obst.

Keith says the opinion has gradually been gaining ground, largely through the work of Lane, Metchnikoff and Barclay Smith, that the great bowel from appendix to rectum (in man) has become a useless and dangerous structure. His paper represents study and a review of much literature to show that it is by no means proven that this structure is useless, and suggests that if we only knew how to keep it suitably employed, by altering our diet to meet its requirements, we might make it serve us and future generations just as well as it answered the digestive needs of primitive and successive races in the past. Interesting diagrams are shown of comparative anatomy study in man, the rat and the ostrich. The author does not agree with the theory that the appendix is vestigial. He mentions that chimpanzees in captivity and on human diet frequently die of appendicitis, though he says there is no evidence to show that this anthropoid in its natural habitat develops this disease. M. S. Henderson.

Cugnier: Primary Malignant Tumors of the Ileo-cæcal Valve (Les tumeurs malignes et primitives de la valvule ileo-cécale). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

The author has brought together observations of 60 cases of malignant tumors arising definitely from the valve. There is no pathologico-histological report of 16 of these, the total number on which this work is based, therefore, being 44 cases.

Cancer of the ileo-cæcal valve is a relatively rare tumor. It is difficult to determine the percentage of occurrence, because it has frequently been studied with cancer of the terminal portions of the ileum and sometimes as a particular case of cancer of the cæcum. Cancer of the valve proper can invade, secondarily, either the cæcum or the ileum, giving two anatomical types, cæcovalvular and ileovalvular; this last form is accompanied with a very marked stenosis of the ileum.

The aspects of the tumor are variable; sometimes it is a lateral tumor implanted by a base more or less large on one of the lips of the valve and expanding into the cæcum or the ileum; sometimes it is an annular tumor — "cancer en virode." More frequently it looks like a collar which retracts the valvular orifice. When it invades the side of the cæcum it may be very extensive, reaching to the ascending colon or even extending beyond it. Metastases into the glands is rare and late.

The symptoms are of two kinds. First, chronic occlusion (alternating diarrhœa and constipation syndrome of König, syndrome of Ricard-Mathieu) tending toward an acute occlusion or cachexia, with invagination of the ileo-cæcal region into the large intestines, at first chronic, then acute. One can determine then the presence of a tumor and the emission of bloody mucus.

The treatment consists in resection of ileo-cæcal junction. If this is contraindicated by the local or general condition, an entero-anastomosis including the ileo-cæcal loop should be made.

J. L. Roux-Berger.

Lane: Chronic Intestinal Stasis. *Lancet*, Lond., 1912, clxxxiii, 1706. By Surg., Gynec. & Obst.

The author defines the term "chronic intestinal stasis" as an abnormal delay in the passage of the intestinal contents through a portion or portions of the gastro-intestinal tract, which results in the absorption into the circulation of a greater quantity of toxic or poisonous materials than can be treated effectually by the organs whose function it is to convert them into products as innocuous as possible to the tissues of the body. The author refers to Carrel's experiments with living tissues outside their natural environment, and says that he has found the most satisfactory confirmation of his views in the study of Carrel's work. To meet various diseases he adopts means to improve the drainage scheme, whether simply mechanical or operative, with the most excellent results. This is nowhere better exemplified than in the extraordinarily rapid disappearance of large tubercular glandular masses in the abdomen after disconnection of the big bowel. Pigmentation of the skin becomes a very marked feature in advanced cases of stasis, especially in patients with dark hair. On eliminating the supply of poison the color and the circulation of the skin change with remarkable rapidity. "In the case of the kidney affected by so-called Bright's disease, which is merely a product of chronic intestinal stasis, the exclusion of the large bowel is followed by an improvement in functioning which is as extraordinary as it is rapid, and a patient who has been face to face with death is quickly restored more or less completely to health, usefulness, and activity."

The great difficulty in the treatment of chronic intestinal stasis and its results is to recognize when the end result has assumed such proportions that the removal of the primary cause does little or no good. As an extreme instance, take cancer of the breast or of the ducts of the liver or of the pancreas, all products of chronic intestinal stasis in the first instance. In the case of the thyroid, Lane has seen a large adenoma of this organ subside with great rapidity after removal of the large bowel. Typical symptoms of exophthalmic goitre of long standing, associated with intestinal stasis, have also rapidly and permanently disappeared. He states that the extraordinary improvement that results from short-circuiting and the disconnection or removal of the large bowel is due largely to the fact that the evacuation of the small intestine is facilitated by its introduction into the pelvic colon, and that the infection of its contents by organisms which grow in the stagnating material in the large intestine ceases abruptly. He does not believe that all absorption of toxins takes place from the stomach and small intestine. He does maintain that the tract other than the colon plays a very important part, he believes the more important part, in the process of absorption. D. C. Balfour.

Schachner: Experimental Anatomical and Physiological Observations Bearing upon the Total Extirpation of the Colon. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In this paper, Schachner said that when we considered the arrangement by which 20 or more feet of small intestine were being supported through a peritoneal attachment measuring five inches, the weakness of the abdominal wall in the inguinal region, and the hernias that resulted from the gravitation of abdominal contents against this lowest and weakest point; when we compared the darkened lungs of the human subject with the clean, pink lungs of the quadruped living under the same condition, as a proof of how unequal the cilia were in their efforts to lift the dirt and bacteria-laden mucus against gravity; and when we watched the pathetic efforts of the tubercular subject to raise against gravity his expectoration,— then we got a full idea of the disdavantages of the upright position.

Arbuthnot Lane, through his work that extended over more than ten years, and especially his recent writings, together with Elias Metchnikoff, deserved the credit for calling the attention of the world to the injurious effects of intestinal stasis. While the end-to-end anastomosis was functionally the most natural, the end-to-side had the advantage of more security and practically the same advantages that applied to end-to-end. His experimental work justified him in believing that when an ileocretostomy or ileosigmoidostomy was made by the lateral method, the intestinal contents did not pass through this opening as a rule, but continued the natural course through the colon provided no obstruction existed. In other words, it was a repetition of what occurred in the stomach after a gastro-enterostomy with a patulous pylorus.

The work of Metchnikoff plainly suggested the chemical side of the question, that is, the chemistry of the large intestine when its functions were for any length of time interfered with. The influence of an abnormally movable kidney as a factor in the development of splanchnoptosis had not received the attention it deserved.

Few of us perhaps realized that the retroperitoneal position of the kidney, when making excursions, enabled it to dissect loose through attrition the peritoneal attachment that served to anchor the viscera to the vertical column.

He wished to emphasize the point that the problem was comprehensive enough to accept all the assistance it could through gymnastics, bandages, regulation of diet and habits, and still furnish an abundant percentage of human wreckage for the surgeon to attempt to reclaim. E. S. Talbot, Jr.

Long: Pseudoperitoneal Cauls of the Colon. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

The nomenclature of the subject was considered by Long, who analyzed the terms "adhesions," "membranous pericolitis," "veils," "pseudomembranes," etc., which were ordinarily applied to the condition described. He showed that we often used very inexact terms in speaking of the membranous formations found about the colon. He proposed the term "pseudoperitoneal caul" as being descriptive and withal correct. Caul means a thin serous membrane, and was especially applied to peritoneal membranes as the layers forming the great omentum. The membranes in question were evidently of peritoneal origin, and by the testimony of the majority of writers they were a new formation, therefore "pseudo," hence the term "pseudoperitoneal caul of the colon."

There were four chronic conditions found in the right iliac fossa; namely: chronic appendicitis, Lane's kink, Jackson's membrane, and cæcum mobile, all of which had much in common as to etiology, pathology, and symptom-complex, and were difficult to differentiate clinically. Of this group the writer laid stress on the pseudoperitoneal cauls of the colon, and believed them to be largely of infectious origin, though he did not deny the influence of developmental errors, splanchnoptosis, and intestinal stasis. E. S. Talbot, Jr.

Brown: The Value of Complete Physiological Rest of the Large Bowel in the Treatment of Certain Ulcerative and Obstructive Lesions of This Organ, with Description of Operative Technique and Report of Case. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

The advantages of complete physiological rest of the entire large bowel in treatment of certain diseases of this organ were strongly pointed out by Brown, who described a technique by which this rest could be accomplished in cases which heretofore had been treated by some surgical method. He explained how the rest could fulfill its purpose and the bowel be put back into commission in a manner both safe and satisfactory.

Through a right rectus incision sufficiently long for general exploratory purposes the abdomen was opened. The cæcum was at once sought and the large bowel was carefully examined from cæcum to sigmoid. All pericolic adhesions were then severed, the appendix removed, and the stump buried. The ileum was next severed, between two clamps, close to the ileo-cæcal value. The distal ileum was tied off and buried, as was the appendix. At a suitable part of the cæcum a purse-string suture of linen was placed and the cæcum was next incised. Through this incision a large rubber catheter was inserted, after which the purse-string was tightly tied. A second purse-string of No. 1 chromic catgut was next placed. Under the loops of this purse-string three long catgut fixation sutures were placed. A stab wound was next made at McBurney's point, through which a forceps was inserted. The catheter and fixation sutures were grasped in the bite of this forceps and pulled through the stab wound. The peritoneal surfaces of the cæcum surrounding the catheter were next scarified and the catheter was pulled through the stab wound, carrying with it the three fixation sutures. The catheter was now slipped through the button and the fixation sutures were threaded through the eyes in the button and tightly tied, thus closely approximating the serous surfaces of the cæcum to the parietal peritoneum. A stiff rubber drainage tube was next inserted into the proximal ileum and fixed with a double purse-string suture. The ileum was now brought out at the lower angle of the rectus incision. The parietal peritoneum was made to hug it snugly by a few catgut sutures, and the abdominal wound was closed in the usual way. The indications for restoring the continuity of the large bowel were improvement of the patient's general condition and the return to normal of the discharge from the excluded large bowel, as shown after repeated chemical, microscopical, or cultured growth examination of irrigation fluids passed through it. This restoration should not be made too early, particularly in the

ulcerative lesions of the colon. When the surgeon deemed that the large bowel had sufficiently healed, and desired to put this organ back into commission, this restoration was readily done by simply cutting out the anus at the lower angle of the rectus incision, closing its end with a purse-string suture, making a lateral anastomosis of ileum to ascending colon or by switching the ileum into the sigmoid. He had never found any difficulty in restoring intestinal continuity. On the contrary, the operation was simple and easy.

This paper was based upon the experience he had gained from ten cases so operated. Two were cases of chronic intestinal stasis, with obstructions due to pericolic bands and flexures; both had greatly improved and were now comparatively well. Three operations were done for the relief of amœbic dysentery; all were cured. One was a case of ulcerative colitis with extensive involvement of the sigmoid and rectum; the patient was now in good health. One was a case of extensive obstructive tuberculous colitis. This patient received great relief from the operation and lived in comfort for two months. Three were for late and inoperable malignancies of the rectum. One lived six months, one five months, and the third case was still living, nine months after operation, comfortable and in reasonably good health, so there was no mortality in the series.

E. S. Talbot, Jr.

Royster: Adhesion of the Sigmoid. (With discussion.) *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In this paper, the author said that sigmoid adhesion was associated with definite symptoms which he believed could be relieved by simple means. Three years ago he directed attention to sigmoid adhesions as a cause of pain in many cases of salpingitis which were attributed to the ovary and other organs. Further experience and observation had convinced him not only of the importance of this adhesion, but of its more widespread interest, so that the whole question had assumed a broader aspect and was coming into consideration in every case of abdominal diagnosis that we had presented to us. Women commonly complained of left-sided pain, but it was not always properly interpreted. The ovary was too often blamed as the chief offender, when as a matter of fact there was very little pain associated with ovarian disease. Most often the tube was the source of the pain and usually preceded any ovarian involvement. In a number of instances neither the tube nor ovary was found involved, yet the woman had pain. The particular thing which was characteristic of sigmoid adhesion as observed clinically was, first, pain during defecation and not afterwards. In addition to this, some of the patients described a stoppage at certain points. Constipation was the rule, but in a few cases the condition was associated with mucous diarrhœa or a mucous discharge from the bowel. Usually the pain was low down in the left iliac region, but it might be higher up, near the spleen or midway. Most of it was below the anterior spine of the ilium. A typical example of sigmoid adhesion was that of a married woman who had given birth to two or three children. She complained of incessant pain in the left quadrant of the abdomen, and was sent in as a case of tubal disease. Her greatest suffering was on going to stool. She was obstinately constipated. Pelvic examination was negative. Her abdomen was opened and a classic sigmoid adhesion revealed. This was dealt with and the abdomen closed. She had been free from pain now for more than two years. Other similar cases were cited.

In discussing Royster's paper, Hunner said the first of two or three cases he saw of this condition was operated more than once for pelvic and other conditions in the abdomen which might be imagined to be causing the real trouble, and finally these sigmoid adhesions were found and relieved, with recovery of the patient. As regards the etiology, some of these adhesions did not come from the large bowel, but from without to the sigmoid. He found in some of these cases that the adhesions ran from the internal inguinal opening over to the large bowel in the shape of fan-like peritoneal adhesions. In other words, the infection had apparently not come from the large bowel at all, but from the lymphatics running into the peritoneal cavity with the broad ligament. He found that in some cases chronic urethritis was associated with this condition of left-sided pain, but not all females with chronic urethritis who had pelvic pain had these adhesions.

Byford stated that in those cases in which the adhesions were not connected with the sigmoid he thought the pain was usually low down, extended off towards the false pelvis about the iliac region, and made it more or less a backache, whereas in the other class of cases the pain extended up along the colon, was apt to extend into the back and be more to the left side.

Moore said sigmoid adhesion was a definite surgical entity, and we could relieve it by surgical measures. In a certain number of cases there was a definite symptom which would enable one to make a positive diagnosis from the ordinary examination, and that was a sausage-shaped tumor extending up the left iliac region toward the splenic flexure.

Dickinson spoke of four types of immobilization of the sigmoid. One was the congenital type, where the attachment of the left adnexa to the sigmoid was rather closer than usual and interfered with its function. The second was the inflammatory type from the left adnexa. The third was one in which there were inflammations around the cæco-appendix which drew it over to the right and immobilized it. Fourth, he spoke of the type described by Royster. To him he had given a very perfect description of diverticulitis or multiple diverticula of the sigmoid.

E. S. Talbot, Jr.

Verhoogen and DeGraeuwe: Cancer of the Rectum (Sur le cancer du rectum). *J. méd. de Brux.*, 1912, xvii, 541. By Journal de Chirurgie.

The authors have operated 48 cases of cancer of the rectum, 40 of these occurring in the last five years. In these, they made an artificial iliac anus 6 times (2 deaths). In 34 cases they performed extirpation of the rectum with 6 immediate deaths, in which 4 had necrosis of the intestines with metastasis situated higher up. Fifteen patients were operated in private practice of Verhoogen. They are interesting from the point of view of post-operative history. Thirteen survived the operation. Six had recurrences between the sixth and the twelfth month. One died of pneumonia at the end of 6 months. One was lost sight of. Three had not had recurrence after 5, 3, and 2 years, respectively. Three cases are too recent to judge of the post-operative effects. In 9 cases there are 3 cures of some duration (33 per cent).

The operative technique followed by the authors is a resection of the ampulla of the rectum, very much like that employed by Depage. The patient is placed in a ventral position, a median incision is made from the anus to the coccyx, the ampulla is freed and extirpated, and the sectioned intestine above the point of the tumor is introduced through the sphincter, which has been denuded of its mucous membrane.

The authors, like most surgeons, enlarge upon the danger of gangrene of the newly formed rectum. They call to mind the anatomical findings of Südeck upon the vascularization of the rectum; but it seems, according to the recent researches of Veber, that this gangrene can result from infection, as gangrene has occurred when the ligature has been placed above the critical point of Südeck. Necrosis follows more easily in extensive cancers with infiltration of the mesocolon and in cancers situated higher up in the intestine. The authors have utilized the abdomino-coccygial route, following the technique of Goepel, which is already employed by Depage and Mayer.

PAUL MATHIEU.

Hazen: A Method of Operation for the Radical Cure of Enteroptosis, with a Preliminary Case Report of 100 Per Cent Cured. *Illinois M. J.*, 1912, xxii, 708. By Surg., Gynec. & Obst.

The essential supports of the colon are the firm attachments of the upper ends of the ascending and descending colon to the posterior abdominal wall. Imperfect fixation at these locations, usually from congenital failure in fusion, allows the vertical colons to drop and the transverse to sag. The author considers this the key to the production of enteroptosis and the rational point for its correction.

The operation consists in anchoring the vertical colons by obliterating their mesocolons. Running sutures are inserted, beginning at the edge of the bowel. To insure efficiency they must include all fibrous fasciculi in the mesocolon, which are abundant at its upper extremity in these cases, and the perinephritic and lumbar fascias posteriorly. Undue relaxations of the transverse colon, abdominal wall, etc., are then treated by pexies, plications, omento-suspension, etc.

In six cases, all show complete symptomatic cure and perfect retention of the colon at the present time.

LIVER, PANCREAS, AND SPLEEN

Hellström: Spontaneous Recovery from Acute Suppurative Hepatitis Following Appendicitis (Zur Spontänheilung der akuten eitrigen Hepatitis nach Appendicitis). *Beitr. z. klin. Chir.*, lxxx, No. 3. By Surg., Gynec. & Obst.

Tropical abscesses of the liver, because they are usually solitary, allow of a better prognosis than those which are secondary to infections of the bile tracts or appendicitis. The latter variety has generally been considered a fatal complication, and it was thought that there was no possibility of recovery without the aid of an operation, unless fortunately there was a spontaneous evacuation by way of a bronchus, or into the stomach or bowel, or through the skin. These abscesses are rarely solitary, but generally multiple, which minimizes the possibility of a spontaneous evacuation. However, experience has taught a number of observers that the prognosis in this class of cases is not necessarily so grave, and that cases of multiple abscesses not infrequently recover spontaneously. This has been the experience of Körte, Munroe, Langenbuch, Sonnenburg, Kelly, Jones, and others. Hitherto the reports in the literature of multiple liver abscesses showed that they almost invariably terminated fatally.

Hellström desires to add his experience and opinion, and agrees with the authors before mentioned that the prognosis is not of necessity such a bad one in cases of multiple abscess formation. He cites a number of cases from the literature, and adds several cases of his own which recovered. In some instances an exploratory laparotomy had made the diagnosis positive, and yet the patients recovered without any attempt having been made to evacuate the abscesses. This contribution establishes beyond dispute the fact that cases of multiple abscesses of the liver are by no means as fatal as was formerly thought, and that such cases not infrequently recover spontaneously without being operated. This favorable termination is the result of a diminishing virulence and final death of the pus organisms, with subsequent inspissation of the focus. All that is finally left is a mass of scar tissue, a fact which has been abundantly confirmed on the autopsy table.

WILLIAM HESSERT.

Nesselrode: The Acute Appendicular Liver. *J. Kansas M. Soc.*, 1912, xii, 461. By Surg., Gynec. & Obst.

In this article the author chooses to classify those cases of chronic low grade biliary infections result-

ing in gallstones, complicating chronic appendicitis, as "the chronic appendicular liver," and under the head of "the acute appendicular liver" he discusses acute toxic hepatitis and suppurative hepatitis or thrombophlebitis of the portal vein, and reports two of his cases. One is a typical toxic hepatitis complicating acute appendicitis which cleared up promptly following appendectomy; the other, a case of multiple abscess of liver complicating an acute appendicitis. The second case died and the autopsy findings are reported. He concludes as follows:

It is well to remember that both these types of hepatic infections are always consecutive to the acute phase of appendicitis. The first usually has its onset during the second, third or fourth day of the attack; the second, anywhere from the fourth to the tenth day. In either case there is time, if the attack is recognized early, for surgery to intervene and save the liver such an attack. Hepatic infection is one of the most terrible complications of appendicitis, and if these cases are to be saved the appendix must be removed before such an infection takes place, for we are powerless to avert the evil once it has established itself. Every practitioner of medicine should have this danger thoroughly in his mind before he advises any patient to await an interval operation for appendicitis.

Norris, Talley, and Carr: Solitary Cysts of the Liver. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Under this topic Norris reviewed the literature of these cysts and reported a case. Talley also reported a case, which was that of a large cyst of the uterus, and reviewed the literature on the subject. Carr described an operation for flat-foot which was the result of traumatism. E. S. Talbot, Jr.

Lapage: Primary Carcinoma of the Liver in a Boy Aged Six Years. *Proc. Roy. Soc. M.*, 1912, vi, 45. By Surg., Gynec. & Obst.

The enlargement of the liver was first noticed after an attack of scarlet fever with nephritis. The liver was enlarged and showed several rounded prominences. The abdominal veins were enlarged and there was ascites; no jaundice. At post-mortem the liver weighed six pounds. There was metastasis in the lung. C. G. Grulee.

Langmead: Congenital Adenoma of the Liver. *Proc. Roy. Soc. M.*, 1912, vi, 46. By Surg., Gynec. & Obst.

This occurred in a baby five weeks of age who died in convulsions. There were no symptoms previous to this time. The liver was found slightly enlarged and fatty, and eight pearly white tumors were discovered. They were clearly defined but not encapsulated. The largest was the size of a marble. C. G. Grulee.

LePlay and Ameuille: Experimental Researches on the Relation Between the Liver, Spleen and Omentum (Recherches expérimentales sur quelques relations entre le foie, la rate et le grand épiploon). *Compt.-rend. d. l. Soc. d. Biol.*, 1912, xxiii, 682. By Journal de Chirurgie.

The authors give the results of their researches on certain relations between the liver, spleen and omentum. To show these relations they have performed a series of experiments.

Series 1. The pedicle of the spleen was ligated, while the omentum was left intact. Careful observations in experiments on animals showed that, after first losing weight, this was regained. The spleen, after 45 hours, presented necrotic lesions, but at the end of 20 days these were replaced by grayish diffluent masses, while the great omentum, engorged with blood, was the seat of an intense diapedesis which perhaps favored the splenic autolysis. Alterations in the liver only began at the end of 8 days and were completed after 3 weeks. They consisted of a perforative hepatic congestion, of nodular infiltration of lymphocytes and macrophages in the portal spaces, and of little hæmorrhagic interstitial suffusions which were perhaps, according to the authors, products of autolytic origin.

Series 2. Splenic ligature with resection of the great omentum. In animal experiments, marked loss of weight occurred and death followed in 25 to 35 days. The spleen rapidly presented autolytic phenomena. At the end of three weeks the liver was the seat of cirrhotic lesions progressing toward organization.

Series 3. The spleen alone was extirpated. In this series no modification of the liver was observed, except for a slight periportal infiltration. The bile was very poor in pigments.

Series 4. Injections of splenic extract. Under the influence of repeated injections, large splenocystic cells filled with iron pigment appeared at the end of six weeks. The splenic capillaries were gorged with blood. The spleen was very congested and hypertrophied.

The effects produced on the liver were analogous to those that are observed after ligation of the splenic pedicle with resection of the omentum.

The authors conclude that the spleen, by the products of its cytolysis obtained by autolysis, or by the method of extracts, exerts with the liver a manifest influence which produced a reaction in the connective tissue. This influence is more or less limited, if the great omentum is intact, through the defensive action which this organ exerts in the abdominal cavity. Pierre Cruet.

Leriche and Cotte: Cholecystectomy in the Acute Stage of Cholecystitis (De la cholécystectomie à chaud dans les cholécystites aiguës calculeuses). *Rev. d. Chir.*, 1912, xlvi, 869. By Journal de Chirurgie.

The same arguments which are used in favor of appendectomy during the acute stage of appendicitis

may, according to the authors, be advanced to warrant cholecystectomy in acute cholecystitis.

Various forms of cholecystitis exist. In suppurative cholecystitis the walls of the gall-bladder are thickened and are often adherent to neighboring viscera, while ulcerations (such as are most common about a calculus in the cystic duct) lead to danger of perforation. Hæmorrhagic cholecystitis is characterized by a sanguinous infiltration of the wall. The phlegmonous form is usually a sequela of an acute cholecystitis in which expectant treatment has been followed. The gangrenous variety apparently depends here, as elsewhere, upon the virulence of the infection.

In well-determined gallstone cases, the appearance of signs of localized infection accompanied by peritoneal reaction is a positive indication for operation. There is everything to gain here by operation, for though some cases of acute cholecystitis may get well under medical treatment, the delay exposes the patient to the danger of complications such as biliary phlegmon, hepatic suppuration, pylephlebitis, subphrenic abscess, empyema and septicæmias of varying gravity.

The authors consider that cholecystectomy is greatly to be preferred to cholecystostomy. The latter often leaves an infected area, with ulcerations which may perforate even after the operation. This operation, therefore, is only to be performed in cases where cholecystectomy proves impossible. Cholecystectomy is the more easily carried out, the earlier the operation is undertaken. If the gall-bladder region is free from adhesions, the cystic duct is first severed and the gall-bladder removed by dissection, starting at the outlet and proceeding toward the fundus. But if there is a local peritonitis the adhesions may necessitate the reverse of this procedure. Leriche and Cotte have added 30 personal cases of cholelithiasis to those collected in the statistics of Körte, Kümmel, Libenthal, Draun, Trendelenburg. and Plöfeneister. In these 30 cases there were 7 of acute cholecystitis. Six were operated in the acute stage. All were cured. J. Okinczyc.

Johansson: Biliary Perihepatitis, with Effusion of Bile into the Peritoneal Cavity without Perforation of the Biliary Tract (Contribution a l'étude de la perihépatite bilieuse avec épanchement biliaire dans le péritoine sans perforation de l'appareil biliaire). *Rev. d. Chir.*, 1912, xlvi, 892.

By Journal de Chirurgie.

Since Clairmont and Haberer reported the first case, in 1910, it has been experimentally demonstrated that effusions of bile into the peritoneal cavity may occur without perforation of the biliary tract. Three new cases have since been reported, one by Schievelbein and two by Doberauer.

Johansson reports a case of a woman 76 years old, in ill health, who in January, 1912, had a severe attack of abdominal pain localized chiefly on the right side. The diagnosis of appendicitis was made. There was a history of a similar attack a year earlier. At operation, the peritoneal tissues were found to be yellow in color, and when the peritoneum was incised a moderate quantity of free fluid of yellowish tint was found throughout the cavity. The appendix was normal. The gall-bladder and bile duct showed no sign of perforation. Cholecystectomy was performed. The patient died on the sixth day. At autopsy, absence of any perforation was confirmed. The author considers that alteration of the wall of the gall-bladder by infection, and perhaps the chemical composition of the bile, are factors in the production of this transudation. J. Okinczyc.

Fowler: Inflammatory Hyperplasia of the Spleen. *Am. J. Surg.*, 1912, xxvi, 417.

By Surg., Gynec. & Obst.

This paper is limited to primary hyperplasia of the spleen amenable to surgical treatment. It includes the idiopathic enlargements of splenic anæmia. Synonyms are splenic pseudoleukæmia and primary splenomegaly. Banti first described the condition. It is understood that Banti's disease is that form of splenic enlargement associated with cirrhosis, ascites and jaundice.

Inflammatory hyperplasia is diffuse or nodular. Three types are distinguished. The ordinary type represents the enlargements grouped clinically under splenic anæmia. Intermediate types are the Gaucher (endothelial) type and the nodular hyperplasia. These are processes which present neoplastic tendencies. In the first type, Banti draws attention to the thickening of the reticulum and to endophlebitis of the splenic, portal and mesenteric veins.

Splenomegaly of the endothelial type was first described by Gaucher under the title of "primary epithelioma of the spleen." The essential feature is the transformation of the splenic parenchyma into spaces arranged in an alveolar manner containing large cells possessing a peculiar morphology. The liver and lymphatic glands may show a similar collection of cells replacing the normal structure. In 1892 Gaucher modified his description and stated that the cells under consideration are of connective tissue and not epithelial origin.

Regarding the pathogenesis of the endothelial type, Schlagenhaufer maintained that there was no resemblance between the proliferated cells and the endothelia of the vascular sinuses. He attributes the condition to the proliferation of reticular tissue in the hæmatopoietic organs, and regards it as systemic, involving the lymphatic and blood-forming organs, and due to an unknown but probably toxic agent.

In the gross the nodular hyperplasia exhibits more marked neoplastic properties. It is particularly with the endothelial type of sarcoma that this class has been confused.

Council: Primary Sarcoma of the Spleen. *Ann. Surg.*, Phila., 1912, lvi, 915.

By Surg., Gynec. & Obst.

This case makes a total of five cases of sarcoma of the spleen to be found in the literature since the

report in 1904 of 32 cases. Of the 16 splenectomies and one enucleation, pain is mentioned in only 8 and a tumor described in 15. Injury as a possible etiological factor is recorded in only 3 instances, and malaria in only 2. Blood findings are generally considered to be non-diagnostic.

Classification. One endothelial sarcoma or round cell sarcoma, one large cell sarcoma, one mixed cell sarcoma, two fibrosarcomata, five lymphosarcomata, and six round cell sarcomata.

After the enucleation, this patient lived seven days. After splenectomies, in the other recorded cases, 3 died early, 5 died of recurrence after indefinite periods, and 7 were well after periods varying from four months to six and a half years.

A mixed cell sarcoma of the spleen occurred in the service of Dr. Hugh H. Trout in 1911, in a man of 58, who for ten or twelve years had suffered severe attacks of abdominal pain. There was a maternal history of carcinoma. The patient gave a lifelong history of alcoholism and morphinism. He had had a traumatism of the abdominal wall with severe pain years ago. Emaciation, peripheral arteriosclerosis, and a mass in the left hypochondrium. W. B. C. 20,200; differential non-indicative. The spleen was practically replaced by a growth of 600 gm., which was removed, and a mixed cell sarcoma was found upon examination. An uneventful convalescence followed, with a gain of 35 pounds in six months.

Charrier and Bardon: Splenectomy for Laceration of the Spleen (Une splénectomie pour déchirure de la rate). *Arch. prov. de Chir.*, 1912, xxi, 689. By Journal de Chirurgie.

Charrier and Bardon report the case of a young man of 18 years, who was brought into the hospital 16 hours after an accident in which a wagon wheel had passed over his abdomen. He complained of pain on the left side of the abdomen and great thirst. He had not vomited, and urination was normal. On examination he was found to be very pale and dyspnœic; pulse 140, temperature 98.8°. The abdomen was tense, rigid, and painful throughout, but more markedly so on the left side. The abdominal tympany had encroached on the hepatic dullness. There was some dullness in the iliac region. A median epigastric incision was made, and upon opening the peritoneum a large quantity of blood and clots gushed out, followed by the distended stomach and intestinal loops. The intestinal tract was normal, but the spleen was found to be lacerated. A second incision, at right angles to the first, was now made, extending from the midline to the left costal margin. Splenectomy proved difficult because of the extreme intestinal distention. The pedicle was ligated, drainage instituted, and the incisions closed with through-and-through silver wire sutures. The post-operative condition was very alarming, and it was necessary to use injections of serum, camphorated oil, spartein and strychnin to combat shock. Recovery followed.

This was the twenty-fifth case of splenectomy for rupture of a normal spleen which had been performed in France. The authors believe that splenectomy in this condition must remain the treatment of choice in cases of severe laceration where repair is not possible. GEORGES LABEY.

Gwathmey: Pancreatic Cysts. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Gwathmey reported a case of cyst of the pancreas, and said the fluid content from the large cyst showed considerable detritus, a few degenerated epithelial cells and leucocytes, but no cholesterin crystals. The small cyst showed a few degenerated epithelial cells. Attempts to cultivate the organism from the cyst contents were futile. The cyst presented one or two interesting features. The fluid in the large cyst was entirely different from that in the smaller cysts, the difference being due to a hæmorrhage or hæmorrhages that took place in the large cyst. The smaller cysts were lined with epithelium, while in the large cyst not a vestige of epithelium could be found. The large cyst was evidently lined with epithelium, but this epithelium must have suffered autodigestion. A hæmorrhage or hæmorrhages took place in the large cyst, which caused the difference in the cyst contents and which produced some trauma to the epithelium of the cyst wall, thereby allowing the ferments in the cyst contents to digest the epithelial lining.

So lax was the abdominal wall after the removal of the tumor that the appendix was removed without difficulty through the same incision. It contained an extremely large appendolith in the tip and was actively inflamed. Old and fresh adhesions in the pelvis were broken up, adherent coils of small intestine removed from the cul-de-sac, and sigmoid properly placed in the pelvis. The kidneys, liver, gall-bladder and ducts, the pancreatic head, and other abdominal organs were found normal. The wound was closed without drainage. The convalescence was smooth and uneventful, and the patient left the hospital in nineteen days to go to her home in Chicago. A recent letter, six months since her operation, reported her in excellent health.

Hall said that several years ago he reported to the association an operation for pancreatic cyst. In that case the cyst evidently arose from trauma. The man was lifting and injured himself. He came to be operated upon five or six months after injury, with an enormous tumor in his abdomen, which held more than two and a half gallons of fluid. He simply drained the cyst and stitched it to the abdominal wall. The man died from inanition the seventeenth day after the operation. E. S. TALBOT, JR.

MISCELLANEOUS

Kanavel: The Abdominal Crisis. *Illinois M. J.*, 1912, xxii, 718. By Surg., Gynec. & Obst.

The author urges the advisability of grouping the acute abdominal diseases into two classes, one

medical and the other surgical, and basing the treatment upon this diagnosis rather than waiting for the specific diagnosis of appendicitis, intestinal obstruction, etc. He draws attention to the fact that in the early hours the surgical conditions are all characterized by the same signs and symptoms, as follows: First, sudden excruciating pain in some part of the abdomen; second, nausea and vomiting; third, rigidity of one or both sides of the abdominal wall; fourth, tenderness at least relatively localized.

If all these are present a positive diagnosis may be made, while a probable diagnosis may be made upon any three if the character of their onset and their course are investigated discriminatingly.

The author then discusses each of these symptoms in detail. It is suggested that this group of signs and symptoms should be held to indicate a clinical entity and enable the surgeon to operate under the diagnosis of an acute surgical abdominal crisis, without waiting for the specific diagnosis as to which organ is affected, to the end that early operation may be performed, and consequently many lives saved.

SURGERY OF THE EXTREMITIES

DISEASES OF THE BONES, JOINTS, ETC.

Ponomareff: The Treatment of Infected Injuries of the Knee Joint with Bier's Hyperæmia. *Beitr. z. klin. Chir.*, 1912, lxxxii, 131. By Surg., Gynec. & Obst.

Many methods of treatment have been advocated for injuries of the knee joint complicated by infection. Among these may be mentioned incision with the introduction of antiseptics, aspiration and injection, drainage, and even resection. Favorable results from the use of Bier's hyperæmia in suppurations of the knee joint have been reported by several observers. Ponomareff reports 54 cases of injured knee joints, which he divides into three groups. The first group includes four cases with perforation of the joint but without symptoms. The second includes all cases accompanied by severe pain, in some of which the presence of an exudate could be determined in the joint. The third embraces the severest cases, with a large exudate, marked sensitiveness, and disturbance of function.

The character of the infection was determined by examining the wound secretion or puncturing the joint. The staphylococcus aureus was the most common organism present. Occasionally the streptococcus was found. In all cases with marked symptoms of joint infection, passive hyperæmia was used therapeutically. A Martin's rubber binder was applied to the upper part of the thigh for 18 to 20 hours daily, and after removal the leg was elevated. Tamponade or drainage was avoided wherever possible. Only when a suppurative arthritis was present was the joint cavity drained. The wound in each case was cleansed with alcohol and painted with tincture of iodine, and a dry aseptic bandage applied. Sounding or probing the wound to find if it extended into the joint was discarded as a dangerous procedure.

In Group 1, 2 cases were healed by hyperæmia and immobilization. In one case immobilization alone gave the same result. In another case suppuration developed after immobilization, and tamponade and ankylosis was the end result.

In Group 2, immobilization and hyperæmia resulted in a complete cure in 7 cases. In 4 cases slight restriction of motion remained. Nine cases were cured by immobilization alone. One case died of sepsis.

In Group 3, 12 cases were treated with hyperæmia and immobilization. Five had complete restoration of function, 3 had restricted motion in the joint, 2 resulted in ankylosis, and 2 ended fatally.

In all cases in which passive hyperæmia did not give good results, the limb was immobilized, the joint was opened, and the intra-articular as well as the peri-articular pus was evacuated."

Ponomareff concludes that passive hyperæmia according to Bier's method is not sufficient in itself in the treatment of injuries of the knee joint. Every case in which suppuration sets in should be treated by immobilization alone or in conjunction with hyperæmia. When hyperæmia is used the opening of the joint and the incision of periarticular abscesses should not be neglected. Passive movements are used only when the inflammatory phenomena have subsided. Especial care is necessary, when long-continued periarticular suppurations have been overcome. Too early application of passive movements frequently leads to an exacerbation of the infection. ERWIN P. ZEISLER.

Stumm: Multiple Myeloma. *Surg., Gynec. & Obst.*, 1912, xv, 653. By Surg., Gynec. & Obst.

The rather rare condition of multiple myeloma is discussed in this paper, and two very typical cases are reported at some length, both clinically and pathologically. It is noted from a study of these cases, as well as the cases reported in literature, that the individual cells are fairly uniform in appearance and, as is quoted from Christian, the "individual cases show no greater variation than occurs in other tumor growths."

The nature of the cells is not known, though there has been a great deal of study and controversy regarding it. Some regard them as a bone marrow plasma cell, others as a myelocyte, and some again as erythroblastic in origin. The gross appearance of the bone is rather characteristic, though a great many other pathologic bone conditions have been confused with that of multiple myeloma. The ribs, sternum, vertebræ, and less frequently the skull

and some other bones, are involved. Tumor masses may or may not be present. The bones become very brittle, there being a thin crust of bony substance remaining externally which is easily crushed; internally the substance is yellowish gray or reddish gray in color. Frequently this is mottled, the areas varying in size from a split pea to a dollar. Usually there are very many thin walled blood-vessels, with only an endothelial layer present. A very fine reticular fibrous framework is present. In many of the cases there is a peculiar substance present in the urine known as the Bence-Jones body. This is not constant, and when it is found is not absolutely pathognomonic, though its presence is always extremely suspicious.

The author did not recognize clinically the first case reported, never having before seen the condition, and it was only by study of the pathologic condition that he was able to identify the nature of it. The second case was readily recognized clinically, and he is of the opinion that, once having had the condition in mind, with a fairly clear understanding of its pathology, the cases should not be difficult of clinical recognition.

Haun: The Treatment of Phlegmon of the Upper Extremity (Ueber Phlegmonen behandlung der oberen Extremität). *Munchen. med. Wchnschr.*, 1912, lix, No. 53. By Surg., Gynec. & Obst.

Instead of a circumcision of the upper extremity proximal to the phlegmon, as advised by Nosske, the author recommends a method which has given him good results for 15 years. Proximal to the phlegmon, three to five longitudinal and parallel incisions, 5 cm. long, are made down to the fascia; the skin from one incision to the other is bluntly undermined, and under these bridges of skin iodoform wicks are inserted. In this way a broad ring is established in which the lymph vessels are open and in which the phlegmon never transgresses. A thick ring of collodium is made above the incisions. The operation can be done with local anæsthesia, is easy, and leaves no disturbing scars. HELIODOR SCHILLER.

FRACTURES AND DISLOCATIONS

Jones: Present Position of Treatment of Fractures. *Brit. M. J.*, 1912, ii, 1589. By Surg., Gynec. & Obst.

Jones states that, as an orthopedic surgeon, he has been led to regard fractures as potential deformities, and in many instances his treatment is modified from the accepted methods to anticipate and prevent subsequent impairment of function. In other cases he lays stress on certain measures of after treatment. In a small minority of fractures he obtains better results by immediate operation. Certain types of fractures are taken up in more or less detail, and the author's treatment is indicated. The essential point is that correct alignment be secured. This may be secured by the most primitive means, and assures a good functional result even if there be overlapping of the fragments. He designates angular deformities as a disgrace to surgery. The question of extension by weight and pulley is discussed. In his hands steady extension by the use of the Thomas knee splint has overcome shortening and has lined up fragments in femur cases where it had seemed impossible.

The author's paper is partly taken up with a discussion of the report on fractures by the British Medical Association. In speaking of the bad results following Pott's fracture he emphasizes the necessity of overcoming well the valgoid tendency and the essential after treatment by aid of an outside iron upright, inside T strap, and the raised inner side of the sole of the shoe. Fractures of the elbow should be treated by acute flexion. The general tone of the paper is to encourage surgeons to mechanical ingenuity in the treatment of fractures, as a result of which fewer operations will be necessary.

M. S. HENDERSON.

Caldwell: Fractures into and about Joints. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In this paper, Caldwell stated that the subject of fractures was too perfunctorily taught. A clearer understanding of their nature and complications would bring about better results and obviate many law suits. Fractures into and about joints required more discriminating diagnosis and treatment than the average fracture of the shafts of long bones. Crepitus was valuable, and its absence significant. Perfect apposition of fragments was of more consequence in proximity to joints.

The author considered fractures about the shoulder, and said that fractures of the anatomical neck were rare. In fracture dislocations, there was necessity for the removal of the head where reduction could not be accomplished. He pointed out the indications for operation, as well as contraindications, in fractures of the surgical neck. He likewise discussed the indications for operations in fractures about the elbow, mentioned the varieties, the diagnosis, and manner of reduction. He also discussed the treatment of fractures at the hip and about the knee, as well as fractures about the ankle and their varieties and complications.

In discussion, Winslow reported that he had had a number of cases of fracture of the surgical neck of the humerus, and he had found it impossible in some cases to effect reduction until the arm was drawn into a position of extension and the bones held together by means of screws, and he had had some good results by that method.

Law stated that in the University of Minnesota they had a different procedure from that mentioned, and their results had been different from those related by Winslow. They resorted to the treatment suggested by Maxwell and Ruth in old people, rather than let them be up and about, with the prospect of a deformed joint and a lack of function of the joint. One woman 87 years of age, and another 92,

had functionating joints and union by following the Maxwell-Ruth method. This method in old people was attended with uniformly good results.

Morris said that in cases in which we did not wish to do an open operation we could often, in selected cases, do a simple operation. First, put the limb behind the fluoroscope. Second, run a narrow-bladed knife down near the fracture. Third, put in a cannula. Fourth, run a drill through the cannula, and transfix both fragments. Fifth, run in a silver pin and leave it there, taking everything else out. One could pin a whole lot of fractures behind the fluoroscope with the patients under the influence of cocain. This method did away with the disadvantage of keeping these patients in bed. In many cases of fractures in joints, one could put in a pin and do a simple operation. E. S. Talbot, Jr.

Pretoff: Fracture of the Lower End of the Radius in Children (Les fractures de l'extrémité inférieure du radius chez l'enfant). *Rev. méd. d. l. Suisse Romande*, 1912, xxxii, 729. By Journal de Chirurgie.

Mme. Pretoff reports 14 cases of fracture of the lower end of the radius in children in Vulliet's clinic. Her conclusions are as follows: This fracture is not at all rare in children, and while not as typical as the same fracture in adults, it still shows sufficiently well marked characteristics to merit description. Mme. Pretoff claims that, contrary to what has usually been held, the line of fracture very rarely follows the epiphyseal line. The prognosis is always good.

Paul Mathieu.

McCurdy: New Transpelvic Lines for Determining Displacement at the Hip. *Internat. J. Surg.*, 1912, xxv, 373. By Surg., Gynec. & Obst.

McCurdy, questioning the accuracy of Nelaton's line in locating the trochanter, describes and illustrates a transpelvic line that crosses the pelvis through the spines of the pubic bones at right angles to the median line, the umbilicus serving as the vertical of the triangle. This line extends outward across the hip joints, passing over or above the trochanteric eminences where the heads of the femurs are in the acetabulum and no fracture of the neck or displacements of the femur exist. He has examined several hundred patients by this new method, and was able to decide almost instantly whether displacement at the hip joint existed. The method is easily applied to patients of all ages, particularly so when the patient is lying on the back, a position in which Nelaton's line is not so readily applied. In order to verify the conclusion found by his method as described, a tape measure, ruler or string is passed over the pelvis so that the ends pass the trochanteric eminences, and are held in this position by the assistant, or a line may be made across the abdomen from one trochanter to the other. Care must be taken that the most prominent points of the trochanter are found. The anterior superior iliac spines are now located and marked, or a line may be made across the pelvis over the spines if desired. If these lines are parallel, no displacement at the hip joint occurs. If, however, the lines converge, displacement of some sort will be found on the side where they are closer. The amount of displacement is now determined from the spines to the point from the trochanteric line immediately below. He points out that in every case where measurements are made without regard to the angle of the femur to the pelvis, error must follow. The amount depends entirely upon the amount of flexion and adduction or other angular variations. In a study on disarticulated skeletons he finds that the relationship existing between the femur and pelvis makes it possible to increase the distance from the anterior superior spine to the internal condyle two inches, while the arch through which the femur passes is no greater than that found in many cases of deformity at this joint. He then outlines his methods. H. B. Thomas.

Shands: Treatment of Fractures of the Shaft of the Femur. *Va. M. Semi-Monthly*, 1912, xvii, 445. By Surg., Gynec. & Obst.

The author is fully convinced that very few cases, if any, should recover with shortened limbs now that the X-ray can show accurately whether the fracture has been reduced. The surgeon should never be satisfied until the fragments of bone have been replaced in the position in which they were before the fracture. The author uses a traction apparatus with the patient under ether to reduce the fracture, and while the traction is maintained a plaster of Paris spica extended from the nipples to the toes is applied. If the X-ray shows after this has been done that the fragments of bone are not in a perfectly satisfactory position, an open operation is done and the bones are anchored in the best possible position. The author's experience has been that about one case in four has to be operated on. He has practiced this method to the exclusion of all others for the past 18 years with perfectly satisfactory results. The method is as applicable to children as to adults.

The author has found that patients treated in this way are far more comfortable than in any extension or traction apparatus, as they can be handled with perfect comfort, and be removed to a rolling chair; children even get about well on crutches without harm.

Estes: Report of the Commission of the Medical Society of Pennsylvania on End Results of Fractures of the Femur. *Internat. J. Surg.*, 1912, xxv, 382. By Surg., Gynec. & Obst.

The report of Estes, chairman of the committee, considers the total number of 788 cases with reference to age, occupation, cause, seat and kind of fracture, amount of shortening, method of treatment, etc., and concludes that an analysis of the cases shows that the greatest number of fractures occur in patients between 20 and 50 years of age. The next largest number is uncer 10 years of age, and the third largest number from 10 to 20 years.

Working people are far more subject to these fractures than any other class, and indirect violence causes about five times as many cases as direct violence. He contends that the open method cannot be recommended as a routine practice, and that it should never be used excpet by men who are thoroughly qualified and with proper surroundings — surroundings where the proper instruments may be had and where the proper operating-room facilities and training will insure thorough aseptic technique. He believes that the complete reports serve to indicate that this most important fracture and serious injury, in hospitals at least, does not receive the attention of the chief surgeon, treatment being delegated to the interne staff. He recommends the proper use of the X-ray and believes traction is most commonly employed. The results of such treatment in most instances enable the patient to resume his occupation and function without serious detriment, although absolute apposition and restoration of the proper axis of the bone are very seldom accomplished. Deaths from simple fractures of the femur are noted in 3.69 per cent of the cases. The reports show that they occur almost wholly in cases of old age, from shock and exhaustion, from pneumonia, or from some operative interference. He thinks it is evident that the open method itself introduces into the treatment of these cases such a marked element of danger that it cannot be recommended for general use nor recognized as a routine practice. As in everything else, the method must be adapted to the case and not the case to the method.

Although he considers plaster of Paris a valuable means of treating these fractures he believes it should be applied only under anæsthesia, and believes the results may be considered good if the measurements show no more than an inch of shortening, providing there is no inversion or eversion of the foot from angulation of the fragments.

H. B. Thomas.

Nouel: Old Dislocations of the Semilunar Bone

(Des luxations anciennes du semi-lunaire). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

A dislocation is old when the anatomical changes have become such that the ordinary procedures for reduction fail or are contraindicated, and this appears to Nouel to be from three weeks to one month after the traumatism.

The author fully agrees with the theory of Delbet and, after reviewing the pathological anatomy of recent dislocations, reports two new observations with radiographs. In the first case the radius was dislocated behind the semilunar, while in the other there was a dislocation accompanied by enucleation of the semilunar.

He also analyses the more complex forms of dislocations, such as that complicated by dislocation of the scaphoid or with displacement of the semilunar backward (case of Gouilloud, of Durand), or with fracture of the scaphoid, fracture of the radius or the cubitus.

In old dislocations the cartilaginous end of the radius frequently shows erosions which may be due to friction or rough irregular fragments of the fractured scaphoid. The styloid of the radius forced outward often shows an irregular surface finely mamelonated or covered partially by fibrous tissue.

There is often lack of solidification of fractured bones; they are never firmly knitted and require several months to heal. Sometimes there is an abnormal union between the radius and a carpal bone, giving rise to an ankylosis. The author calls attention to a traumatic osteotrophy where the decalcification is intense. This coincides with the description by Mocquot of osseous neoformations and hyperostoses.

The cut and torn ligaments form a mass of fibrous tissue poorly differentiated, covering the semilunar and interposed between the bones, and uniting with them to form a fibrosseous mass which gives a shadow on the X-ray plate. The ends of the carpal bones and the semilunar are shortened. The denuded articular surfaces are diminished in extent.

The nerves may be raised and flattened by a dislocation of the semilunar forward, and may subsequently give rise to a mild neuritis. The nerves may be compressed by a collar of connective tissue.

In simple dislocations in which the semilunar is not enucleated, there is a thickening of the wrist antero-posteriorly, lower than in fracture of the lower end of the radius. The altered position of the scaphoid and semilunar may be felt by palpation. When the semilunar is enucleated it is easily felt under the skin; the antero-posterior thickening is less marked but the lateral displacement is often greater. The flexor tendons are raised and stretched over the ridge formed by the semilunar, which moves under the finger like a marble. A hard, raised lump is constant. Motion of the hand is limited, with marked decrease in the grasp of the hand. Compression of the nerves is so common that it is almost a symptom; the median is most often involved and sometimes the ulna. Frequently there is a neuritis with lancinating pains, or changes in sensibility; at times complete anæsthesia, or motor symptoms, contractures, or trophic changes.

In dislocations complicated by fracture of the scaphoid the anatomical snuffbox is filled by the scaphoid dislocated backward. There is a swelling of the region which prolongs the radial gutter under the heel of the hand between the long abductor of the thumb and the palmaris longus.

Old fractures are easily diagnosed, and it is hardly possible to confuse them with sprains, dislocations of carpals, fractures of the radius, or isolated fractures of the scaphoid. X-rays should always be used.

The indications for operation, according to the author are almost absolute. The method of choice is extirpation of the semilunar with the fragment of the scaphoid, if this is fractured, through a frontal incision. The results are excellent. Prognosis depends upon concomitant lesions of the carpal,

especially traumatic osteo-arthritis and osteitis rarefícans, when a resection should be done. This is, however, very rare. L. CAPETTE.

SURGERY OF THE BONES, JOINTS, ETC.

Fay: Transplantation of the Fibula at the Resection of Long Bones (La transplantation restauratrice du péroné après les résections des os longs du membre supérieur pour ostéo-sarcome). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

Fey favors conservative treatment of osteosarcoma. He quotes the work of Gangolphe and his followers, and of Huguier, and agrees with them as to the advantages of periosteal resection in amputations and disarticulations. He discusses the indication furnished by the site and character of the tumor, and the condition of the neighboring tissues.

The reconstitution of continuity after resection is best accomplished, according to the author, by means of an autoplastic osseous graft. This is the quickest and simplest method; it is always possible of accomplishment, and gives the best results. The fibula offers the advantages of an easily accessible long bone of sufficient solidity which may be removed whole, hence with intact marrow and periosteal covering, without its loss causing any serious consequences. If at least 6 cm. of the lower end of the bone remain, the only effect of the removal of the upper portion is a slight relaxation of the tibio-tarsal articulation, which is easily remedied by suitable ankle support. Whatever may be the histological changes occurring in the transplanted bone, the clinical results show plainly that it satisfactorily fulfills its mechanical function of support.

The author describes the technique used by Gangolphe in the resection of the different bones of the upper extremities in cases of osteosarcoma. He lays stress upon the necessity of removing the tumor, the adjacent tissues, and any parts which appear involved, in one single piece. The excision of the fibula is carried out after the resection of the neoplasm. The length of the graft must be longer than that of the resected fragment, and it should be taken from the middle portion of the fibula. A vertical incision is made which lays bare the peroneal muscles. These are then dissected off the bone, care being taken not to graze the latter. Ollier's resection probe is then pushed behind the bone through the interosseous membrane, and a Gigli saw then placed in position. After section of the bone, the interosseous membrane is incised and the insertions of the posterior muscle dissected off. The bone graft is wrapped in compresses moistened with warm serum. Hæmostasis is carried out and the wound closed with a drain. The two ends of the bone graft are then shaped to a point with a bone forceps and the marrow cavity of the resected bone widened by the use of a conical burr. The ends of the graft are then fitted into the cavities, the result being a dovetailing of the graft into the defect in the resected bone. In the forearm, where the medullary cavities are small, it is better to use a suture at the two ends.

If the resection involves an epiphysis, the superior articular surface of the fibula must be included in the portion excised. In this case care must be taken to avoid damage to the external popliteal nerve or its branches. The external lateral ligament and the tendon of the biceps femoralis are dissected off subperiosteally. After the implantation of the graft the wound is closed, with drainage, and the limb placed in a previously prepared plaster molded splint, in which it remains for six weeks. Some form of external support should be used for several months more.

Fey cites a case of his own. A woman of 29 years felt a sharp pain in the middle portion of the left humerus at a moment when the arm was under strain. A few hours later she noticed a small swelling about the size of a pigeon's egg at this point. The pain lasted for only a few days, though later it would be brought on by any sudden movement; but the tumor increased in size and a year later was the size of an orange. It was situated on the anterior and external aspect of the arm. It was hard and did not pulsate; there was no detectable glandular involvement.

A tourniquet was placed about the upper portion of the arm, and a vertical incision made distal to it from the lateral epicondyle to within 5 cm. of the acromin. The radial nerve was found and retracted. The brachial artery biceps and the median nerve were retracted medianward. Three cm. above the tumor and 4.1 cm. below the tumor the shaft was freed from muscular insertions and sawed through. The fibers of the triceps were dissected off the posterior aspect, a good exposure being obtained by pushing the lower fragments outward. The resected fragments, which contained the tumor, and the brachial muscle, which lay on its anterior surface, were removed en bloc. A segment 15 cm. in length was then excised from the shaft of the fibula and dovetailed into the defect in the humerus. After treatment as above.

There was a complete radial paralysis of seven months' duration, due to the fact that this nerve had been momentarily compressed between the graft and the humerus. Normal healing. At the end of seven months union was complete at the upper end of the graft, but a pseudarthrosis existed at the lower end. The patient had perfect use of the limb, and could even play the piano. There was no interference with locomotion, though a slight relaxation of the ankle joint was present. The specimen showed a spontaneous fracture of the humerus due to a round cell osteosarcoma.

M. GUIMBELLOT.

ORTHOPEDIC SURGERY

DISEASES AND DEFORMITIES OF THE SPINE

Gray: Certain Physical Signs in Scoliosis of Lesser Degree. *J. Am. M. Ass.*, 1912, lix, 2249.
By Surg., Gynec. & Obst.

Gray discusses the physical signs, particularly those of percussion, in cases of scoliosis. High pitched areas are found, posteriorly, opposite the superior vertebral convexity; anteriorly, over the intraclavicular region; posteriorly, below, opposite the lower vertebral convexity; and (when present) anteriorly, below, diagonally across from the superior infraclavicular area. With scoliosis minus actual lung disease the high-pitched areas are quite constant. Limited or absent downward excursion of the lung is found on the side opposite the upper vertebral convexity. Early tuberculous consolidation usually presents an area of dullness in front as well as behind on the same side; this it not true of the scoliotic phenomena. L. G. Dwan.

Strong: Eight Cases of Osteomyelitis of the Spine. *Lancet*, Lond., 1912, clxxxiii, 1576.
By Surg., Gynec. & Obst.

The disease is rare, but more common than is generally believed. Of the 8 cases reported, in one the arches of the vertebræ were the seat of the disease, whereas in all the others the bodies were attacked. The prognosis is naturally better in the former cases. Mortality varies in different statistics from 57 to 71 per cent. Of the 8 cases 7 died, in several of which some complication was the actual cause of death. The symptoms are very similar to those of Pott's disease. The actual cause of osteomyelitis of the spine is, as in other bones, usually the staphylococcus aureus. As to the predisposing causes, a history of injury is common; other predisposing causes given are cold and fatigue, antecedent infections, and puerperal infection. As regards treatment, there is no doubt that in immediate operation lies the only hope of saving life, except, perhaps, in typhoid cases. Makins and Abbott advise the opening of abscesses and the removal of necrosed bone. Kermisson urges that the bone itself should be left alone. He refers to the close resemblance that many of the cases bear to Pott's disease; indeed, several were actually diagnosed as such. With a little more care it should be possible to distinguish the two diseases in nearly every case. The abscess of Pott's disease most often appears externally in Petit's triangle, and is roundish, whereas the abscess of osteomyelitis spreads along the vertebral column and is fusiform and oblong. Especially important are evidences of secondary circulation in the skin around the abscess, owing to septic thrombosis in the spinal veins.

Donald C. Balfour.

Tournier and Ducuing: Indications in Cases of Spina Bifida in the New-Born (De la conduite à tenir chez le nouveau-né atteint de spina bifida). *Arch. prov. de Chir.*, 1912, xxi, 49.
By Journal de Chirurgie.

The therapeutic indications vary with the anatomical variety of the spina bifida and with the presence or absence of complications, such as meningitis, hydrocephalus, trophic disturbances, etc.

Case 1. *Myelomeningocele.*— This condition is easily recognized by the presence of three concentric zones over the surface of the tumor — the dermic, serous, and medullary. This form is always fatal, and therefore no radical treatment should be attempted.

Case 2. *Myelocystocele.*— In these cases there is no loss of continuity of the skin over the tumor, unless it be due to secondary ulceration. The diagnosis is to be confirmed by careful examination and, if necessary, by radiography. The bony defect is usually lateral and affects only one side of the posterior vertebral arches. If no complications, such as trophic disturbances, ulceration or imminent rupture, are present, only palliative measures should be employed. By means of frequently changed aseptic dressings an attempt should be made to protect the tumor from traumatism and infection. The authors advise against radical treatment in these cases; in the first place, because sometimes, even though rarely, there may be spontaneous recovery, thus avoiding the risks of a serious operation; and secondly, because the operation does not insure freedom from late sequelæ. Complications that occur in these cases may contraindicate any interference or may demand it. In the case of a large tumor, with thin walls which threaten to rupture, if there are no signs of meningitis or hydrocephalus, a radical cure should at once be attempted by incision of the sac. In the case of a moderate sized tumor on whose summit an area of ulceration is present which threatens perforation, the first indication is to treat the inflammatory process antiseptically. Later, if rupture seems imminent, intervention may be attempted. In certain of these cases of myelocystocele, rupture and fistula formation are already present when the case reaches the surgeon. Here the authors advise immediate operation. Finally, if marked trophic disturbances are present, such as club-feet, deformities, or trophic ulcers, operation should be performed without hesitation, for it is the only means of handling these complications, and if undertaken early enough may yield good results; but if the child shows signs of meningitis or hydrocephalus the attempt is useless.

Case 3. *Meningocele.*— Contrary to the opinion of most surgeons, Tournier and Ducuing do not advocate operation in all these cases. They consider that the same indications hold good here as in the

case of myelocystocele, basing their opinion on the gravity of the operation. GEORGES LABEY.

Elliott and Sachs: Observations on Fracture of the Odontoid Process of the Axis with Intermittent Pressure Paralysis. *Ann. Surg.*, Phila., 1912, lvi, 876. By Surg., Gynec. & Obst.

A case is studied, clinically and after autopsy, where fracture had existed for 32 years. During that period there had been frequent attacks of intermittent pressure paralysis. Autopsy confirmed earlier diagnosis and X-ray findings. Following are among the observations mentioned:

(*a*) The fractured surface was by attrition converted into a false joint — a pseudarthrosis.

(*b*) Owing to forward displacement of the atlas, the vertebral space was much restricted.

(*c*) The odontoid process was broken at the neck and carried forward with the atlas and ankylosed with same.

(*d*) Insecurity of this part of the vertebral column was noted. Owing to the formation of the articular surfaces, displacement is made easy. X-ray cuts, drawings, and photos are given.

At the time the patient was seen the condition of the reflexes together with the atrophy of muscles indicated advanced secondary changes in the cord. This, together with marked respiratory paresis, forbade surgical interference.

The Mixter-Osgood operation was considered but discarded. Autopsy showed that it would have failed, since so much force was required to hold the atlas in place.

In a similar condition the authors suggest a laminectomy — a removal of a portion of the posterior arch of the atlas. At the proper stage such an operation was regarded as feasible.

MALFORMATIONS AND DEFORMITIES

Greze: Surgical Treatment of Rachitic Deformities of the Leg (Du traitement chirurgical dans les deformations rachitiques de la jambe). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

Greze believes that besides the usual indication for surgical intervention in rachitic deformities of the leg, the æsthetic results should be taken into consideration, because of the frequency of mental disturbances arising in those left deformed. The author prefers osteotomy to osteoclasis. He enters at some length into the subject of osteotomy, and concludes by claiming certain advantages for the cuneiform type. First, by this method an exact correction of a marked curvature is best obtained, because the base of the bony wedge can be exactly calculated to effect this result. Second, complete correction of the faulty rotation is obtained. Third, there is no loss of length because the gain due to straightening compensates for the shortening caused by the removal of the wedge. The author cites two of Veau's cases in which good results were obtained. L. CAPETTE.

Werndorf: The Pathology and Therapy of Congenital Dislocation of the Hip. *Am. J. Orth. Surg.*, 1912, x, 243. By Surg., Gynec. & Obst.

Werndorf reviews briefly the history of the diagnosis of congenital luxation of the hip, and then discusses in considerable detail the pathology, etiology, symptoms and treatment. The pathologic anatomy and its bearing upon the accepted theory of intrauterine pressure as the cause of the dislocation is most clearly brought out.

The symptomatology is also described with relation to the pathologic anatomy, and the clinical picture thus drawn is very clear. The differential diagnosis between congenital and traumatic dislocations is sharply made from the indifferent position of the one and the definite and fixed position of the other.

The treatment described by the author is the bloodless reduction method as practiced by Lorenz with tearing of all the muscles and tissues on the adductor side of the thigh until extreme abduction at right angles is possible. Then, by rotation inward and pressure upward below the trochanter, the femoral head is made to pass over the acetabular rim. The author explains that reduction may take place over the upper, the posterior or the lower border of the acetabulum, and the technique varies slightly with the point chosen for reduction to take place.

The method of retaining the head in the socket is by abduction, with right-angled flexion and outward rotation, and fixation in this position in plaster cast.

The socket is often so shallow that the stability of the joint is poor, and emphasis is laid upon the importance of weight bearing, or walking with the thigh fixed in the cast, so as to deepen and develop the acetabulum by pressure.

The novice is cautioned against the accidents incidental to reduction in these cases, such as fracture of the femoral neck, ischiadic paralysis, and injury to the femoral vessels; and for this reason he is urged not to exceed the age limits for reduction as laid down by Lorenz, i. e. 6 years for double dislocations and 10 years for single.

Palliative treatment is described for cases which are too old for the bloodless reduction, or where for other reasons the head cannot be retained in the acetabulum. This consists in transposing the location of the femoral head from its loose, movable position on the dorsum ilii to a more fixed and secure position above the acetabulum under the anterior superior spine. This is done by traction after tearing the adductors and then fixing the leg in hyperextension and abduction of thirty degrees.

JOHN L. PORTER.

SURGERY OF THE NERVOUS SYSTEM

Leriche: Radicotomy in Case of Parkinson's Disease (Radicotomie dans un cas de maladie de Parkinson). *Lyon méd.*, 1912, cxix, No. 52.

Last year the author published (*Journal de Chirurgie*, viii, 543) the results of observations in a case of Parkinson's disease in which he cut the cervical spinal roots in an endeavor to modify the rigidity from which the patient suffered. The procedure modified the trembling characteristic of the disease but did not affect the rigidity. Recently the author operated upon another patient, at which time a marked hæmorrhage forced him to forego the extradural operation which he had intended. However, he opened the dura mater and sectioned most of the fibers of the sixth, seventh and eighth posterior cervical roots. On the seventh day, when the therapeutic results seemed to have been obtained and the post-operative results were good, the patient suddenly died from asphyxia. Temperature of 39°. Leriche thinks that death was due to bulbar infection. At autopsy nothing was determined.

From observations made in this case the author points out two interesting facts. The action did not affect the rigidity of Parkinson's disease, while it caused the tremor to disappear. There is, therefore, a difference to be made in the pathogenesis of these two symptoms. The therapeutic results showed that incomplete section of the third branch on either side markedly diminishes the tremor beyond all expectation. J. DUMONT.

Elsberg: Some Features of the Gross Anatomy of the Spinal Cord and Nerve Roots and Their Bearing on the Symptomatology and Surgical Treatment of Spinal Disease. *Am. J. M. Sc.*, 1912, cxliv, 799. By Surg., Gynec. & Obst.

The following observations were made by the author during the last year in a number of dissections of the human spinal cord, nerve roots, and membranes in order to study their arrangement and relations. First, the structure of the posterior roots as the explanation for the peculiarity of root symptoms at different levels. It is well known that the anterior and posterior nerve roots perforate the dural sheath separately, with a thin septum of dura mater between them. In the cervical region the nerve bundles of the posterior roots remain distinct until they have passed through the dura. The bundles are spread out like a fan, the broadest part being at the cord and occupying a space of 1 to 2 cm. of the cord. In the dorsal and lumbar regions the arrangement is different from that just described. The separate bundles soon combine to form one bundle, which passes outward to the dural opening as the posterior root. From this arrangement it is clear that in the cervical region a tumor will for a long time make pressure upon only a few of the bundles which go to make up the posterior root. In the dorsal and lumbar regions the nerve bundles are united into one nerve in the cord; a tumor in these regions will press upon a whole nerve root from the beginning. Clinical experience agrees with these anatomical facts.

A careful dissection of the posterior roots of the spinal cord will show a marked difference in their course at different levels. In the cervical and upper dorsal regions the nerve bundles unite to form the posterior root and pass out of the dural sac at almost a right angle to the cord. From the eighth cervical to the mid-dorsal region the cords of the posterior roots are different.

Each root has an inclination downward until it nears the dura. It bends upward at an angle just as it perforates the dura. In the mid-dorsal region this angle is often very acute — 40 to 45 degrees. In the lower dorsal and lumbar regions the posterior nerve roots pass downward and outward and perforate the dura. It is easy to understand, when one considers the striking angle in the posterior roots in the dorsal region, that only a slight inflammatory process near the dural opening may be responsible for the occurrence of marked root symptoms, movements of the vertebral column often intensifying or relieving symptoms.

The ligamentum denticulatum is a fibrous band which is derived from and attached to the lateral aspect of the pia mater on the cord midway between the anterior and posterior roots. On each side of the cord the ligament extends outward and is attached to the inner surface of the dura by numerous dentations or slips. It is due to this ligament that a tumor which grows on the anterolateral or posterolateral aspect of the cord will press upon only anterior or posterior roots for a long time, and thus give only anterior or posterior root symptoms before the appearance of pressure symptoms upon the cord itself.

The dentate ligament ends below, at the level of the first lumbar vertebra, in a fork-shaped extremity. The outer prong of the fork is usually about 1 cm. long and is attached at its end to the inner surface of the dura. Sometimes this prong is 3 or 4 cm. long. The inner prong of the fork is attached to the pia on the lateral aspect of the cord and is prolonged downward along the side of the conus to its tip. The first lumbar posterior root rests upon this fork, and it may be used as an anatomical landmark for the identification of the first lumbar root. If one begins to count from the posterior root which lies on the fork of the dentate ligament, which is the first lumbar, one can easily identify each posterior root.

The importance of these anatomical facts, for the operation and division of the posterior roots to the lower extremities, is clear, and the author advises that in such operation the lumbosacral cord be exposed by the removal of the laminæ and spinous processes of the eleventh and twelfth dorsal, or the

eleventh and twelfth dorsal and first lumbar vertebræ. After identification of the fork of the dentate ligament no difficulty will be had in recognizing the posterior roots, as they can be easily counted, beginning with the first lumbar.

Duroux: Clinical Results of Nerve Grafts (Résultats cliniques des greffes nerveuses). *Lyon chir.*, 1912, viii, 562. By Journal de Chirurgie.

Under the heading "Nerve Grafts" the author describes the free transplantation of a segment of a nerve which is interposed between two ends of a sectioned nerve. The transplant may be obtained from the patient himself (autogenous graft), from another individual of the same species (homogenous graft) or from an animal of another species (heterogeneous graft).

In a brief résumé of the historical aspect of the subject, from a clinical and experimental point of view, the author points out that the first experimental nerve transplantation was performed in 1870 by Philipeaux and Vulpian, who transplanted a segment of the lingual nerve of a dog into a defect of the hypoglossal. The first application of this method in man is due to Albert in 1876. Since that time Kauffman, Mayo Robson, Petersen, Powers, and James Sherren have tried this method. The number of cases reported, however, is few, as the author could only collect 30, 2 of which were autografts, 6 homografts and 22 heterografts. To these he adds a new case of Jaboulay, which was the first published in France. In this case the brachial vessels and the median and ulnar nerves had been severed by a stab wound on the internal aspect of the arm. The operation was immediately performed, the artery was ligated, and the nerve sutured, but in spite of this suture the sensibility and motility were not re-established and muscular atrophy appeared. It was most marked in the hand, where it affected the interosseous muscles and those of the thenar and hypothenar eminences. At the end of five months the case was reoperated. The proximal ends of the nerves were found to end in bulbous expansions, which were embedded in the cicatrix. There was a gap of 8 or 10 cm. at the point of severance. The central bulbs were lengthened and approximation was attempted by suture. A separation of 6 cm., however, persisted. The result of this second operation was negative and trophic changes soon appeared. One year after the accident Jaboulay decided to attempt a nerve transplantation. At the operation a gap of 15 cm. was found to be present. The ends of the nerves were isolated and freshened and the defect made good by transplantation of the sciatic nerve of a dog (right great sciatic for the ulnar and right small sciatic and left perineal for the median). The transplants were left surrounded by the perinervous cellular tissues according to the technique described by Douroux in an earlier publication (*Journal de Chirurgie*). The wound healed by first intention, and the functional results of this graft were very gratifying. That same evening convulsive movements were observed in the paralyzed muscles. On the third day there was some motion in the wrist, and on the fifth day some sensibility was determined in the region of the thenar eminence. At the present time, five and a half months after transplantation, return of sensation is complete, movements in the wrist joint are normal, flexion of the fingers and apposition of the thumb are awkward and incomplete. The patient can write, hold a glass, etc. Duroux attributes the insufficiency of movement of the fingers in part to the trophic alterations of their articulation and to muscular atrophy.

Among the 30 observations of nerve grafts previously published (Kilvington), 19 only can be used from the point of view of functional results, and success is noted in 8 (1 through autograft, 1 through homograft and 6 through heterografts, to which must be added the author's case). It must be remarked that most often, as in the case of Duroux, the return of sensation, a function purely nervous, has been more complete than that of mobility, because after a nerve section the degeneration affects especially the muscular element.

Ch. Lenormant.

Frazier and Mills: Intradural Root Anastomosis for the Relief of Paralysis of the Bladder and the Application of the Same Method in Other Paralytic Affections. *J. Am. M. Ass.*, 1912, lix, 2202. By Surg., Gynec. & Obst.

Frazier and Mills report what they believe to be the first case in which intradural anastomosis of spinal nerve roots has been successfully accomplished. Eight months after operation the patient could dispense with the urinal, which he had worn constantly, for a period of 12 hours, and with pressure above the suprapubic region partial evacuation of the bladder was possible. They believe the operation has a field in some forms of residual paralysis after poliomyelitis and possibly in some monoplegias of central or peripheral origin. They discuss the physiologic problems involved in re-establishment of innervation to the muscles of the bladder and the operation as performed. L. G. Dwan.

MISCELLANEOUS

CLINICAL ENTITIES—TUMORS, ULCERS, ABSCESSES, ETC.

Moullin: The Biology of Tumors. *Brit. M. J.*, 1912, ii, 1594. By Surg., Gynec. & Obst.

There is no hard and fast line between innocent and malignant tumors. They are common to all animals. There is no proof of any parasitic origin. Tumors are composed of a group of cells which for some reason break off all relation with the rest, abandon all idea of function, and retain only the faculty of growth. They are truly parasitic. Moullin takes up at some length the study of the germ cell and the somatic cell — the former specialized for the purpose of maintaining the species, the latter subordinating itself to the maintenance of the germ cell. Whatever the origin of the tumor, no such arrangement ever exists between its cells and the parent body as exists between the germ and somatic cell. So there are two types of tumors, one developing from the germ cell and one from the somatic cell. The paper deals practically with only the somatic cell tumors. These tumor cells have thrown off all restraint. They grow and multiply more rapidly because the force that would have been consumed in raising the cells to a higher plane of differentiation is available now for growth. Their energy, which should go for the common good of the parent, is now directed to their own selfish end of increase in size and number. M. S. HENDERSON.

Lisser and Bloomfield: Further Observations on the Carcinoma Skin Reaction. *Bull. Johns Hopkins Hosp.*, 1912, xxiii, 350. By Surg., Gynec. & Obst.

In the hope of simplifying this test and shedding further light on its value in the diagnosis of malignant disease, the authors carried out a series of experiments upon 62 verified cases of malignant disease (carcinoma and sarcoma) and in 94 cases of healthy individuals, the patients suffering from various non-malignant ailments. Throughout the experiments the corpuscles of Group 4 alone were used (the corpuscles of which are neither agglutinated nor hæmolysed by any sera in vitro).

A summary of their 156 cases in which the corpuscles of Group 4 alone were used shows that:

1. In 62 cases of verified malignant disease, two thirds gave a positive reaction and one third were negative.
2. In 94 control cases, 91.6 per cent were negative and 8.4 per cent positive.
3. As a practical diagnostic adjunct, a negative skin test adds little or no weight to the evidence against cancer, being comparable to many other clinical tests of empirical nature.
4. A positive reaction is strong presumptive evidence of cancer.
5. To obtain reliable results, corpuscles of Group 4 must be used. GEORGE E. BEILBY.

Bryan: Precancerous Lesions. *J. Tenn. St. M. Ass.*, 1912, v, 315. By Surg., Gynec. & Obst.

After a brief discussion of the theories of the origin of cancer, Bryan expresses his adherence to the view that parasitic causes may be dismissed as having no support in fact, and reviews Ribbert's theory advanced in his recent work, "Das Karzinom des Menschen," as the most rational explanation of the origin of cancer. He summarizes Ribbert's views as follows: "Every tissue has its proper place in relation to other tissues, and as long as the structures remain normal cannot transgress the limits set for it. In the relation between epithelium and the subepithelial connective tissue and between the mucous membrane and the submucous connective tissue these lesions are rigidly drawn, so that, whatever cause may produce a proliferation of the epiblastic and the hypoblastic cells, it can only result in the accumulation of such cells in a mass on the surface in question, but never in the penetration of that tissue which serves as a basement membrane, and therefore never in the production of cancer. Something more is necessary than an increased capacity on the part of the cells for multiplication."

In every case of beginning cancer studied by Ribbert — and his work has been borne out by other investigators — an explanation was found for the invasion of the subjacent connective tissue not in the epithelial cells, but in the changes brought about in the connective tissue itself as the result of an inflammatory process, constant in appearance and produced by irritation, which reduces the protective powers of this connective tissue against the ingrowth of epithelial cells and at the same time stimulates the epithelial cells to an abnormal proliferation. The irritant which produces this inflammatory process may be mechanical, chemical, bacterial or electrical. The author then discusses the origin of cancer from new growths, such as atheromata, epidermoids, dermoids, tertomata, embryomata, and polypi of the alimentary tract. It is interesting to note that the small number of cancers positively demonstrated in individuals under fifteen years of age occur "in precisely those organs which are most subjected to irritation or equivalent disturbances." Leucoplakia, occurring in the mouths of syphilitics, alcohol drinkers and smokers, is very frequently followed by cancer. Bottini observed 100 cases of cancer of the tongue, of whom every one was a smoker or a chewer of tobacco. Cancer of the gallbladder is almost invariably associated with the presence of gallstones or a history of gallstone colic. "Von Neve, in India, studied 1720 malignant tumors; of these, 848 were cancers of the thigh and abdomen, which resulted from scars produced by the custom of carrying baskets of fire under their clothing." Xeroderma, gastric ulcer, X-rays and radium and bilharziasis are cited as irritative conditions which may result in cancer formation. The

gist of the paper may be summed up in the statement that if precancerous lesions were more closely studied the recognition of the condition might be made earlier and more efficient treatment applied.

Bériel and Delachanal: Malignant Lipoma (Les tumeurs malignes du tissu cellulo-adipeux). *Arch. de Méd. exp. et d'Anat. path.*, 1912, xxiv, 717.
By Journal de Chirurgie.

A woman (age not given) entered the hospital with a large tumor on the posterior aspect of the right thigh, which had been present for one year. At operation the neoplasm was found to have arisen from the sheath of the sciatic nerve. The specimen weighed three kilos. Six months later there were metastases in the lumbar glands and in the fatty capsule of the left kidney, causing lumbar and sciatic pain. A second operation was performed. The left kidney was removed with a portion of the tumor as well as the lumbar glands. A year and a half after the first operation the patient died in a cachectic condition. Autopsy showed an involvement of the right lumbar fossa, the omentum, the right lung, and the intermuscular cellular tissues of the neck. Histological examination of these different tumors showed that they were of lipomatous origin, both in the case of the primary tumor and in that of the metastases. At certain points there were myomatous and sarcomatous characteristics, which were interpreted as indicating a lack of differentiation. The diagnosis was of a malignant lipoma, as opposed to that of sarcoma with lipomatous evolution. These tumors arise from the fatty connective tissue and ordinarily, as opposed to the benign lipomata, their stroma is very cellular. These cells develop fatty vesicles, . ut in atypical cases the sarcomatous appearance becomes predominant and the fatty origin of the tumor cannot be diagnosed. P. Masson.

Neef: The Interpretation of Post-Operative Fever in Aseptic Cases. *Am. J. Surg.*, 1912, xxvi, 423. By Surg., Gynec. & Obst.

It is a matter of common knowledge that every operation on an aseptic case is physiologically followed by a slight rise in temperature which is not due to infection. This reaction constitutes what has been fitly termed aseptic fever. The definite nature of this reaction is apt to escape attention unless the post-operative fever chart is subjected to more than the cursory examination which it generally receives during the surgeon's rounds. Furthermore, a curve which clearly represents the typical reaction after an aseptic operation is not so frequently met with in everyday practice as might be supposed, because of the disturbing influence on the temperature produced by manifold minor complications in the course of recovery. By exercising certain precautions, however, these extraneous influences may to a great extent be eliminated systematically, and the true aseptic fever curve be obtained in its pure form.

It is evident that with a concrete view of the character and behavior of the typical reaction, the normal course of aseptic fever, any deviation from the normal which is due to the advent of a complication can more readily be detected. In order to have a reliable working basis in this clinical study it should be the rule to lay stress on accurate measurement and recording of temperatures by the nurse in charge, and to demand rectal readings for all abdominal and pelvic cases unless otherwise specified. In addition, in order to ascertain if the case is afebrile from the beginning, there should be kept at least one day's record of the temperature before operation.

The normal aseptic fever is remittent in type; the highest wave follows the operation, while the waves on succeeding days diminish gradually in amplitude until the temperature becomes practically normal towards the end of the week. In general the maximum rise after an aseptic operation may be expected to occur at a somewhat variable time within the first thirty-six hours; that is, it usually manifests itself on the day following the operation. For example, the average time of its appearance for one series of cases was eighteen hours, the earliest rise being nine hours, and the latest noted twenty-nine. The maximum rise should be quite definite in its amplitude, in general about 100.6° F. per rectum; and as a rule it should not exceed 101° F. per rectum without arousing the suspicion that some complicating factor is present. Under normal conditions of the pelvic organs, that is in the absence of inflammatory foci in the pelvis, the onset of menstruation should not materially disturb this reaction. An anomalous rise occurring at this time may suggest the presence of some latent pelvic trouble.

Another point of importance in the clinical study of the normal aseptic fever is that the rise of temperature on the day following the maximum rise, or sooner — the post-maximal rise as it might be called — should never exceed the maximum rise in amplitude. It may approach the latter, but is usually less. Furthermore, while it is characteristic of the curve of normal aseptic fever that the post-maximal wave does not exceed the maximum wave, this relation of the two waves to each other in the first part of a post-operative fever curve, although suggestive, cannot be interpreted as precluding later complications or as insuring an uneventful course.

Conversely, in a case of bowel stasis, where the preoperative evacuation of the colon is insufficient, the post-maximal rise may be markedly affected and show an elevation which greatly exceeds the maximum rise. Thus the case may appear to assume an alarming turn, and the post-maximal rise reach 104° F. or more. In such cases, however, it is helpful to remember that the pulse is apt to remain comparatively slow. When, on the other hand, the preparation for operation was adequate and the origin of the stasis is post-operative, several days usually elapse before the influence of intestinal

putrefaction is reflected in the fever curve. The maximum and post-maximal waves, in such cases, may therefore remain unaffected, the perturbation appearing later.

Indeed, when early post-operative evacuation of the colon is practiced, that is on the second or third day, the enema becomes a prophylactic measure. When the rise appears on the fifth or sixth day after an operation it may sometimes be traced to a slight infection of the skin or mucous membrane, perhaps through the channel of a suture. In view of the relative frequency of aberrations due to stasis in the colon, it is rarely in point to open the surgical dressing for revision of the wound before the effect of emptying the bowel has been observed. Elevations of temperature which have their origin in the bowel are promptly impressed after an enema has been administered. When this is not the case, a spot of tender infiltration in the suture line of the mucous membrane or skin may be sought, and in the skin, in addition, a slight redness betrays the source of trouble. With a concrete conception of the typical aseptic reaction, and how it may be modified by the more common minor complications, the way is open to the further study of the influence which more serious complications may exert.

Welter: Echinococcus Disease. *Beitr. z. klin. Chir.*, 1912, lxxxii, 435. By Surg., Gynec. & Obst.

Welter reviews our present knowledge of echinococcus disease and reports two cases from the Leipziger Clinic. In both cases there was a primary liver echinococcus which ruptured into the right pleural cavity. The first case was that of a former sheepherder who complained of severe pain in the hepatic region, with bulging of the lower ribs on the right side, an enlarged and sensitive liver and an X-ray shadow with a high standing diaphragm. A diagnosis of echinococcus was made and the operation by Trendelenburg showed a large cyst of the liver with characteristic microscopical findings in the cyst fluid. Four weeks later there were symptoms of sudden perforative pleurisy. An extensive rib resection with drainage was performed and later a thoracoplasty (Schede) brought about a cure.

The second case was more obscure, beginning with a sudden chill, sweats and pain in the right hepatic region. Scolices and hooklets were found in the pleural fluid. The right thorax was resected from the seventh to ninth rib by Payr. Death occurred in ten days from lung embolism.

In both these cases the diagnosis was confirmed by the positive complement fixation test of Bordet-Geugon, both before and after operation. Welter considers the X-ray and the serologic test of the greatest inconstance in the diagnosis. Eosinophilia is too inconstant to be of value. The treatment is primarily surgical. Thirty-five cases of primary liver echinococcus with rupture into the right pleural cavity have been reported in the literature. The operative mortality is close to 80 per cent.

ERWIN P. ZEISLER.

Garin: Contribution to the Study of the Tropical Ulcer. *Transvaal M. J.*, 1912, viii, 122. By Surg., Gynec. & Obst.

The cause of tropical ulcer is now admitted to be the spirochæta schaudinni Prowazek, associated with fusiform bacilli, which have some relation with the bacilli fusiformis of Vincent. But the species of fusiform bacilli is not yet fixed, and the mutual relations of the spirochæta and the fusiform bacilli and modes of infection remain obscure.

The author has studied 400 cases and finds that the histopathological changes agree with those studied by Keysselitz and Mayer. These changes follow some quite definite line in regard to arrangement and relations of spirochætes, fusiform bacilli and cellular elements. The spirochætes found by the author conformed to the Schaudinn type and are known by the description of Prowazek. Direct infection from wound secretion is possible, but probably is rare. The author believes that transmission occurs by the aid of the resistant forms of Prowazek. He describes some special bodies which he observed in three biopsies, and believes they may have some part in transmission and that possibly they may arise from the spirochætes, which he believes precede the advent of fusiform bacilli in the formation of tropical ulcer. He believes that when spirochætes, few in number, have penetrated the skin they may have a tendency to form these bodies, probably a cyst stage in their life cycle, and then may adhere to splinters or other foreign substance and be introduced by the foreign body into healthy skin elsewhere to develop an ulcer. These special bodies are referred to as intra-epidermal by the author. He advances a theory that the spirochæte and fusiform bacilli may have a common origin, since many transition forms and gradations are found between spirochætes and fusiforms.

The most satisfactory treatment consists in two or three daily applications of trypanblau in watery solution of 1 or 2 per cent, after first cleansing the ulcer. After 36 hours parasites have usually disappeared and the ulcer presents a healthy red granulating surface. Epidermic grafting by the Thiersch method is then performed upon the granulating surface. The worst cases usually leave the hospital in fifteen to twenty days when treated by this method.

FLOYD B. RILEY.

SERA, VACCINES, AND FERMENTS

Tournier: The Use of Antitetanus Serum in Tetanus (Considérations sur le serum antitétanique dans le tétanos). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

The author has compiled an extensive review of various opinions expressed on the value of antitetanus serum, and has come to the following conclusions: First, the efficiency of the preventive injection of antitetanus serum is proven by the diminished number of cases of tetanus seen nowadays in civil and military practice. (He mentions the infrequency

of tetanus as a complication following the numerous accidents on the Fourth of July.) Cases of tetanus arising in spite of preventive injections are very rare, and in many of these the author considers that the injections were not given according to the proper rules. The dose of the serum is usually 10 cc., but in cases of serious laceration 20 or 30 cc. should be given. The author stipulates that the French serum should be used, which ought not to be fresher than three weeks nor older than seven or eight months. The injection should be repeated every ten days up to the healing of the wound. Most scrupulous disinfection of the wound should be carried out.

Many serious mishaps have followed the preventive injections, and as with other therapeutic sera they are difficult to avoid. It is perhaps better to give the second injection between the ninth and eleventh day following the first. Calcium chloride, in doses of one gram per day by mouth, to be taken during the first fifteen days, has been held to be of value. Lastly, it is best to use the same method of injection each time.

The curative action of antitetanus serum is uncertain, but in some cases of proven tetanus the use of very large doses given intravenously almost daily has brought about a cure.

H. Guimbellot.

Von Dungern: Serodiagnosis of Tumors by the Complement Deviation Reaction (Ueber Serodiagnostik der geschwülste mittels Komplementablenkungsreaktion III). *München. med. Wchnschr.*, 1912, lix, No. 52. By Surg., Gynec. & Obst.

The author believes that the character of his tumor reaction can be made more specific by using acetone extracts of human red blood cells, instead of alcoholic tumor extracts, as advised in previous papers. Blood of paralytics gives better specific results. With these blood cell extracts the sera of patients with malignant tumors, also sera of syphilitic and tubercular patients, gives a positive specific reaction. By the use of chemically pure sodium hydroxyl solutions the reaction can be made more specific, as nearly all the tubercular and syphilitic sera react negatively. Only in case of surgical tuberculosis was a positive reaction present in spite of the proper use of the sodium hydroxyl solution.

Among 102 sera of patients with carcinoma, the reaction was positive in 91 cases. It was with $\frac{1}{10}$ normal serum that hæmolysis was arrested. Of 16 cases of sarcoma 11 gave positive reaction. Among the cases suspicious for cancer were 15 cases with a positive Wassermann, nevertheless the tumor reaction remained negative. This proves the reaction as very specific.

The nature of the reaction does not lie in antibodies but in abnormal metabolic substances. By adding carbohydrate to normal human blood serum a cancer reaction can be imitated.

Heliodor Schiller.

Schwartz and McNeil: Further Experiences with the Complement Fixation Test in the Diagnosis of Gonococcus Infections of the Genito-Urinary Tract in the Male and Female. *Am. J. M. Sc.*, 1912, cxlix, 815.

By Surg., Gynec. & Obst.

In a previous paper attention was drawn to the value of the serum diagnosis of gonococcus infections in general, showing that in chronic gonococcus infections, even though limited to the genito-urinary tract, an antibody specific for the gonococcus could readily be detected in the blood. Experimental work showed that the secret of success lay in the use of a polyvalent antigen on account of the fact that the different strains of the gonococcus seemed to differ considerably one from the other. Finally, the authors stated that, in their opinion, the facts at hand seemed to prove conclusively that a positive reaction denotes the presence of recent activity in the body of a focus of living gonococci. They give their technique in detail and discuss,— first, the significance of a positive and negative reaction; second, the time of appearance of a positive reaction (not to be expected earlier than about the fourth week of the disease, and then only in acute cases with some complication, such as acute prostatitis, gonococcus arthritis, etc.); third, the time of disappearance of a positive reaction after cure; and fourth, the relative value of the complement fixation and bacteriological methods of diagnosis in chronic and doubtful cases, and the technical difficulties connected with the two methods. Chronic anteroposterior urethritis is also discussed, and a number of cases are reported.

Chronic prostatitis, as well as verumontanum disease in which gonococci were not found, is discussed. In these cases clinically cured the authors examined 165 cases, of which 13.2 per cent gave a positive reaction. Gonococcus infection of a woman is discussed and the conclusions drawn from this series of studies are as follows:

1. A positive reaction denotes the present or recent activity in the body of a focus of living gonococci.

2. A negative reaction does not exclude gonococcus infection, but for the reasons stated should be accorded considerable importance.

3. A strong positive reaction is not to be expected earlier than about the fourth week, and then only in very acute cases with some complication.

4. A positive reaction is not obtained if the disease is limited to the anterior urethra.

5. A positive reaction does not entirely disappear until seven or eight weeks after cure. In other words, if a strong positive reaction is obtained seven or eight weeks after the apparent clinical cure, the patient should be looked upon as still harboring gonococci.

6. In chronic cases, isolation of the gonococcus in culture is the only absolute bacteriological proof of gonococcus infection.

7. The technique of a complement fixation test

is simpler than that of isolation of the gonococcus in culture, and the possibilities of error are less.

8. In cases regarded clinically as post-gonorrhœal, a positive reaction is obtained in 31.4 per cent.

9. In 62 cases of chronic prostatitis giving a history of gonococcus infection within three years, a positive reaction was obtained in 54.8 per cent.

10. In 165 cases looked upon as clinically cured for at least three months, a positive reaction was obtained in 13.2 per cent.

11. In women a positive reaction is probably not obtained unless there is some involvement at least of the cervix.

12. On account of the unreliability of the bacteriological diagnosis of gonococcus infection in women, the complement fixation test should prove of special usefulness in gynecological conditions.

H. A. Potts.

Silver: Vaccine Therapy in Tubercular Bone and Joint Disease. *Penn. M. J.*, 1912, xvi, 210.
By Surg., Gynec. & Obst.

The divergent opinions regarding tuberculin may be explained by the difficulty of accurately estimating the degree of improvement, the selection of unsuitable cases, the lack of a simple and accurate method for determining dosage, and too short a period of treatment. That it has proven efficacious in some cases cannot be doubted if we are to credit literature, a shorter duration, an improved function, or both being claimed. It is noteworthy, however, as showing the general American experience, that of 51 orthopedic surgeons only half could report (circular letter) any special experience, while half of these were opposed to its use, and only four could be regarded as decidedly favorable. The author's cases, about fifty, showed general improvement but no gain in duration or function.

At present tuberculin is to be regarded as an adjunct to other measures in selected cases when used by the experienced, but it certainly is not a measure for the busy practitioner.

Lyons: A New Form of Tuberculin: Some Notes on Its Diagnostic and Therapeutic Value. *Lancet*, Lond., 1912, clxxxiii, 1582.
By Surg., Gynec. & Obst.

A comparatively large number of patients react positively to old tuberculin in whom no trace of tuberculosis is found clinically and who give no history of a tubercular infection. By a process of precipitation of old tuberculin with absolute alcohol the author obtains a filtrate which gives much more accurate results. If 1 minim of this filtrate be injected under the horny layer of the skin, a raised inflammatory area appears round the site of injection in from 12 to 18 hours in known tuberculous individuals; no positive reaction has been noted in persons apparently free from tuberculous disease. The inflammatory area in early cases of tuberculosis is usually nearly an inch in diameter. In more advanced cases the inflammatory area is smaller, usually about half an inch in diameter. In still more advanced cases the area of inflammation and induration is less well defined but recognizable, while in very advanced cases a reaction, if at all present, is very slight. The test as described has up to the present been applied to 270 persons. Of these, 191 were known to be suffering from tuberculous disease in various forms. Of these 191 tubercular cases the reaction was positive in 186; the 5 tubercular cases yielding a completely negative reaction were in the last stages of pulmonary tuberculosis and died within two weeks of the date of the application of the test. In the remaining 79 negative cases no reaction whatever was noted, and in these great care was taken to exclude the possibility of a tuberculous infection, past or present. A number of patients have been treated with the filtrate, and so far the results have been very encouraging. It is easily borne and does not produce the untoward results so frequently given by other forms of tuberculin. Donald C. Balfour.

Whiteside: The Use of Tuberculin in the Treatment of Surgical Urogenital Tuberculosis. *J. Am. M. Ass.*, 1912, lix, 2232.
By Surg., Gynec. & Obst.

Whiteside considers the tuberculin treatment of any case of tuberculosis in any stage as about on a par with bacterin treatment of any other condition. A great deal may be accomplished by using tuberculin in proper dosage. He regards the choice of the preparations used as a personal matter, each one being guided by personal experience. The opsonic index merely introduces another element of uncertainty and error without compensatory advantage.

L. G. Dwan.

BLOOD

Vincent: Treatment of the Hæmorrhagic Diseases of the New-Born. *Arch. Pediat.*, 1912, xxix, 887.
By Surg., Gynec. & Obst.

This article begins with a very thorough review of the literature on the subject, and then takes up the question of animal serum and human blood serum. The subject of blood transfusion is reviewed and the later method used by Vincent is given. The technique is as follows:

Glass tubes 12 cm. long and 3 mm. in diameter are used, and the end which is inserted into the infant's vein is about 2½ mm. in diameter. The tubes are coated with paraffin or a wax mixture to prevent clotting of the blood. The vessels connected are the radial artery of the donor, usually of the father, and the largest accessible vein of the infant. The vein best used in young infants is the external jugular. This is exposed by a half inch incision; the vein is clamped with a light artery clip as low as possible and tied above. The vessel is then cut through and three small hooks are inserted into the slit. The tube is then inserted into the vein, and the other end into the donor's artery. Transfusion

is stopped when the infant's face regains a normal red color.

There are reports of 11 cases treated in this way. In each case the immediate effect was to check the bleeding and correct the anæmia. Eight of the 11 cases were cured; one died of a diffuse peritonitis 20 hours after operation. One other case which ended fatally was probably of syphilitic origin; this child died one month after operation. The other case which died was moribund when treated; the pulse was helped by transfusion, but respiration was not improved. Four additional cases which were not treated by transfusion received injections of whole human blood. In two of these there was intracranial hæmorrhage, which was demonstrated by lumbar puncture and at autopsy. Two other cases of melæna neonatorum died rather suddenly.

All experiences teach us that the best results in these cases are to be obtained by the use of whole human blood, blood serum or transfusion of blood. In severe cases the last is to be preferred. There are two sets of cases, however, which cannot be benefited by this line of treatment. The first is where the cause of bleeding is bacterial infection or ulcers of the stomach or duodenum or syphilis. The second form comprises cases with hæmorrhage in the brain, adrenals, kidneys and liver. C. G. GRULEE.

Pearce and Austin: The Relation of the Spleen to Blood Destruction and Regeneration and Hæmolytic Jaundice. V.—Changes in the endothelial cells of the lymph nodes and liver in splenectomized animals receiving hæmolytic serum. *J. Exp. M.*, 1912, xvi, Dec. By Surg., Gynec. & Obst.

It is known that large endothelial cells in the spleen have the power to engulf red blood cells. Further, the presence of blood pigment (in anæmia and malaria) in the cells (Kupfer's cells) of the liver capillaries indicates that these cells play some part in the destruction of red blood cells.

The authors found that in splenectomized animals which had received hæmolytic serum there was a great increase of the phagocytic power of the endothelial cells of the lymph nodes and liver for red cells. They found the sinuses of the lymph nodes packed with large, pale endothelial cells, nearly all of which contained red blood cells. This increase was not found in normal animals which received hæmolytic serum. These findings strongly suggest the development of a compensatory function of the lymph nodes and possibly the liver in the absence of the spleen, i.e. the function of destroying red blood corpuscles. J. F. CHURCHILL.

Pearce, Austin, and Musser: The Relation of the Spleen to Blood Destruction and Regeneration and to Hæmolytic Jaundice. III.—The changes in the blood following splenectomy and their relation to the production of hæmolytic jaundice. *J Exp. M.*, 1912, xvi, 758. By Surg., Gynec. & Obst.

In a previous paper it was noted that (1) during an early period after splenectomy, jaundice frequently failed to occur upon the administration of hæmolytic serum; (2) later there was an increased resistance of the red blood corpuscles; and (3) spontaneous jaundice occasionally occurred several months after splenectomy.

Examination of the blood of splenectomized dogs showed that there is a gradual progressive decrease in the red cells and hæmoglobin which reaches the lowest level at about the 26th day. From this time there is a gradual increase until the 82nd day, the blood reaching normal at about the end of four and one half months. It was found that the period during which jaundice failed to appear corresponded roughly to the period of blood degeneration; that the period of increased resistance corresponded to the period of blood regeneration, and the spontaneous jaundice to the time when the blood regained its normal level. It was found by animal experiment that dogs rendered anæmic by bleeding also failed to show jaundice. It was further shown by blood count, hypotonic salt solution test and by examination for hæmoglobin in the serum and urine that the difficulty in producing hæmoglobinuria and jaundice in animals splenectomized one month or more, is due to an increase in the resistance of the red cells.

The authors tentatively conclude that the failure of the appearance of jaundice upon the injection of hæmolytic serum is due to the anæmia and not to the absence of the spleen. They conclude also that it is possible that spontaneous jaundice occurring at long periods after splenectomy is an accompaniment of the complete regeneration of the blood. J. F. CHURCHILL.

Pick: Hæmorrhagic Diathesis. *München. med. Wchnschr.*, 1912, lix, Dec. By Surg., Gynec. & Obst.

The author reports 34 cases of hæmorrhagic diathesis which occurred in the county of Saaz from March to June, 1912. Next to small superficial hæmorrhages, large deep subcutaneous and intramuscular infiltrations were observed.

The microscopic examination of the blood did not show any changes, nor was the coagulation-time of the blood decreased. Subjective symptoms varied greatly, also the general condition of those affected.

As to the etiology of the condition, the author believes the character of the food to be an all-important factor. At the time of the present study there was a failure of crops and the poor population was forced to live on sausages, coffee, bread and meat, food which lacks the proper amount of potassium salts. In short, the author believes the etiology to be the same as in scurvy.

HELIODOR SCHILLER.

Wilson: Fatal Post-Operative Embolism. *Ann. Surg.*, Phila., 1912, lvi, 809. By Surg., Gynec. & Obst.

The author presents a summary of the fatal cases of post-operative embolism occurring in St. Mary's Hospital (Mayo clinic) from the opening of the

institution September 30, 1889, to December 31, 1911. During this period over 63,000 major operations were done and 47 cases of fatal post-operative embolism occurred, a percentage of 0.07. The highest percentages of fatalities from operations on various regions were: prostate (0.66), small intestine, colon and rectum and gall-bladder in the order named.

The lowest percentages of mortality by regions in which any occurred were of the appendix and mouth. No fatality from embolism occurred in any of the 1346 operations on the breast, nor did any follow any of the 449 vaginal hysterectomies, though there were 5 fatalities in the 1712 abdominal hysterectomies. More than one half of the fatalities occurred between the fifth and twelfth days after operation. In three fourths of the cases the embolism was pulmonary.

Findley: Puerperal Thrombophlebitis. *Am. J. Obst.*, N. Y., 1912, lxvi, Dec.
By Surg., Gynec. & Obst.

Findley gives the histories and pelvic findings in a series of 7 cases of chronic and acute pelvic thrombophlebitis. Two of these cases recovered — one, a chronic case, after the administration of vaccines, and one after an exploratory operation which presented no accessible primary focus. The autopsy findings on the 5 fatal cases, together with a study of the literature, leads Findley to the following conclusions regarding the Trendelenburg operation:

1. The operation of Trendelenburg is correct in theory, but is as yet in the experimental stage.

2. It is contrary to modern practice to open the abdomen in the course of puerperal infection unless for drainage in general peritonitis, and we therefore view the suggestion of Trendelenburg with misgivings.

3. We are as yet unable to demonstrate clinically the extent to which the infection has traveled, hence it follows that an exploratory incision must be the final resort in determining the extent of the infection. Even this means may fail to give the desired information.

4. The pelvic views including the iliacs may not be thrombosed and yet the infection may attack the veins higher in the abdomen, beyond control and even beyond inspection through an exploratory incision. Furthermore, bacterial emboli may develop in the lungs and elsewhere without the formation of thrombosed veins.

5. The thrombosed veins may be secured and the infection later travel by other avenues and lead to a fatal issue.

6. It is not always possible to demonstrate the presence of infected emboli which, when found, are viewed as contraindications to operative treatment.

Findley believes the Trendelenburg operation will find a limited field of usefulness in obstetric surgery, and that the procedure is worthy of an extended trial. N. Sproat Heaney.

Bull: Thrombosis and Embolism Following Appendicitis Operations. *Beitr. z. klin. Chir.*, 1912, lxxxii, 345. By Surg., Gynec. & Obst.

In 188 operations for appendicitis, Bull has observed thrombosis in 22 cases and embolism in 15. He divides thromboses into manifest (palpable) and occult (not palpable). The palpable thromboses occurred chiefly in the second week, and especially in the left femoral vein. The occult thromboses were manifested chiefly by an increase in the pulse rate, without a corresponding increase in the temperature. The symptoms of a pulmonary embolus were sudden, severe pain in the cardiac region or chest, anxious expression, cyanosis, dyspnœa, rapid pulse, and death in a few minutes. Smaller emboli caused sudden pain in the epigastrium, precordium, chest or back, lasting from 5 minutes to 1 or 2 days. In addition, there was restlessness, orthopnœa and a transitory rise of temperature and pulse. Hæmoptysis occurred 1 to 4 days later. There was usually no cough or expectoration. The physical signs depended on infarct formation. Regarding the etiology of post-operative thromboses, Bull makes the following statements: (1) Thrombosis rarely occurs, if ever, before the age of puberty, and with greatest frequency after 30. (2) Thromboses are more frequent after laparotomies than after other operations. (3) Thrombosis may occur in clean as well as infected cases. (4) The thromboses may develop far from the operative field. (5) The left femoral vein is more often affected than the right. (6) Pulmonary emboli due to post-operative thrombosis seldom lead to abscess formation. (7) In acute appendicitis thromboses occur much more rarely when not operated than when operated. Bull argues that the determining factor in thrombosis is the anatomical change in the venous wall, diminished elasticity increased, thickness after middle age, plus variations in the pressure. The exact cause of post-operative thrombosis is still problematical. Erwin P. Zeisler.

BLOOD AND LYMPH VESSELS

Buchanan: Circular Resection and Suture of the Axillary Artery for Transverse Laceration by Fracture-Dislocation of Anatomical Neck of the Humerus. *Surg., Gynec. & Obst.*, 1912, xv, 648. By Surg., Gynec. & Obst.

In 1908, the author could find but 38 verified cases of fracture of the anatomical neck of the humerus, and since that date the literature has not shown any great number of cases. This particular bone lesion was not a causative factor in any of the reported cases of circular or lateral suture of the axillary artery, nor was laceration of this artery mentioned as a complication of this particular fracture.

The author's own case is reported as follows: An incision was made at right angles to the anterior axillary fold. The dislocated head was found with its articular surface presenting and its fractured

surface impacted into the packet of vessels and nerves. When removed, a tear, four fifths across the axillary artery and just opposite the emergence of the subscapular and posterior circumflex arteries, was revealed.

A loop of tape was passed around the artery 1½ inches above the laceration, just tightly enough to control the circulation. A rubber protected clamp was placed upon the distal segment. The two emerging arteries were then ligated and severed and transverse section made of the lacerated artery, thus procuring two freshened stumps. Being unfamiliar with the Carrel technique, the author used his own improvised method. He sutured the vessel by means of interrupted sutures of the finest silk on the smallest of curved intestinal needles. About twelve sutures in all were placed, and they passed through all of the coats except the intima, which in this case was calcareous. A provisional loop of catgut was placed about the artery above the suture and left loose so that it could make no constriction but could be used in case of secondary hæmorrhage, the ends being brought out alongside the drains. After removing the clamps the hand became warm, whereas throughout the operation it had been cold. Pulsation of the vessel below the suture was normal, but was doubtful at the wrist. No tissue for covering the vessel was available. The wound was closed with gauze drainage. The patient recovered, but has never had a distinct radial pulse and has considerable muscular spasticity and some limitation of motion at the shoulder.

Brief abstracts of the 29 cases of circular sutures of arteries hitherto reported are given by the author.

FLOYD RILEY.

Ney: The Rôle of the Vein in the Arterial Collateral Circulation (Du rôle des veines dans la circulation collaterale artérielle). *Rev. d. Chir.*, 1912, xlvi, 903. By Journal de Chirurgie.

Ney has studied the functional relationship between the venous and arterial networks in the extremities. His observations were based on animal experiments and on two cases in which he had occasion to resect an axillary aneurysm. He proceeded as follows in his experimentation. He first determined the pressure in the general arterial system, and then, after exerting pressure upon the chief arterial trunk in the extremity, he determined the arterial pressure below this point. Pressure was then exerted on the corresponding veins. In this way he was able to determine the influence of the two factors which affect the arterial pressure below the constriction — first, the influence of the extent of the collateral arterial circulation, and second, the influence of the capacity of the venous channels. After ligation of a large arterial trunk the arterial pressure below the ligature may fall so low that it cannot satisfy the aspirating action of the venous outflow. In such a case no blood, or at least insufficient quantities of it, will reach the distal portions of the membrane. The author proposes to overcome this by ligation of the vein at the same time as the artery. In this manner the venous pressure is raised, which in turn causes a rise in arterial pressure sufficient in most cases to insure distribution of the blood to the distal portion of the extremities. The author's eighteen experiments performed on dogs seem to sustain this point of view. The practical conclusion is that ligation of the chief artery of a limb should be accompanied by ligation of the corresponding vein.

J. OKINCZYC.

Boulay: Lymphatics of the Anus and Rectum (Étude sur les lymphatiques de l'anus et du rectum). *Thèse de Paris*, 1912, Nov.
By Journal de Chirurgie.

The author, after devoting a chapter to technique, reviews the earlier work of Sappey, Quénu, Gérota, Cuneo and Marcille. He then details his own researches and states his conclusions.

1. The cutaneous zone of the anus has two paths of lymphatic drainage. The first consists of two lymphatic trunks on either side, which go to the inguinal glands. This path has been well described by Quénu and Gérota. The second path leads to the anorectal glands. They account for a recurrence above the levator ani in cases where the surgeon has been unable to excise these affected glands, though he may have otherwise performed an extensive extirpation.

2. The anal mucosa and the adjacent portion of the rectal mucosa possess lymphatic channels which run to the middle and superior hæmorrhoidal glands. These lymphatic channels, which lead to the middle hæmorrhoidal glands, are interrupted by certain small glands variable in size and number which lie along the course of the "homonymous" artery. These are simply relays, and the main trunks lead on to a larger gland situated at the point of origin of the middle hæmorrhoidal artery on the wing of the sacrum at the level of the second sacral vertebra.

3. The upper portion of the rectal mucosa drains into the middle and superior hæmorrhoidal glands.

4. The lymphatics of the rectum and anus anastomose freely among themselves and with the lymph vessels of neighboring organs. The anorectal glands form a relay on both the superior and the middle hæmorrhoidal paths of lymphatic drainage. The columns of Morgagni are the sites of a free anastomosis between the middle and superior hæmorrhoidal lymph channels. Boulay has not been able to find any lymph vessels accompanying the inferior hæmorrhoidal vessels nor has he seen the intrapelvic gland which Cuneo has described as lying at the point of origin of the internal puedic artery.

L. CAPETTE.

POISONS

Mayer: Purulent Complications Due to Erberth's Bacillus (Complications purulentes dues au bacille d'Erberth). *Argentina Med.*, 1912, No. 48, 805.
By Journal de Chirurgie.

The author reports three cases of typhoid fever with purulent complications:

Case 1. Patient was a man of 20 years, who had run a typical clinical course with several hæmorrhages and a positive Widal. On the 23rd day he had a chill, and his fever, which had been down to 98.9° F., rose to 103.1° F., with a pulse of 140. Upon examination a small swelling was found on the right side of the neck, which the patient said had been present for eight years. During the ensuing five days this tumor developed rapidly in size and became very painful. Fluctuation was made out. Aspiration yielded a thick yellow pus, from which typhoid bacilli and staphylococci were isolated. Fever was of a septic type. Later there developed two small abscesses, one in the left breast and the other on the external aspect of the arm. In the pus from each of these subcutaneous abscesses typhoid bacilli and staphylococci were identified. The abscesses were incised and the patient recovered.

Case 2. The patient, a man of 23 years, had run a typical typhoid course. He had shown a well marked bronchitis. There had been a hæmorrhage on the tenth day; on the sixteenth day a sacral area of ulceration had been noticed; on the eighteenth day his temperature, which had previously fallen, began to show increased daily variations. His pulse rose to 140. Another decubital ulcer appeared on the back and one also over the trochanter. Auscultation at the base of the right lung revealed signs of pleural effusion extending to the angle of the scapula. The fluid obtained by aspiration contained typhoid bacilli. The patient's Widal reaction was positive. He was transferred to the surgical service, and died a few days later.

Case 3. A child of 15 years developed a small painful tumor in the right flank, a month and a half after recovery from typhoid fever. Upon examination this tumor was found to be situated in the right hypochondrium, between the parasternal and mammillary lines. It caused a well-circumscribed, visible bulging at this point. It moved with respiration, fluctuated, and was tender on palpation. On percussion the dullness over the tumor was found to be continuous with the hepatic dullness which extended upwards to the fifth interspace in the mammillary line. Examination of the other viscera was negative. There was no fever. Widal reaction was negative. Exploratory puncture yielded a yellowish green purulent fluid, which microscopically contained numerous leucocytes and some degenerated liver cells. Typhoid bacilli were found in the cultures. The patient was transferred to the surgical service, and an incision was made over the presenting portion of the tumor. A cystic tumor was found adherent to the abdominal wall which, when it was emptied of its purulent contents, proved to be lined with a typical hydatid membrane. The diagnosis of a secondarily infected hydatid cyst of the liver was made. The cyst was drained, and the patient recovered.

Salva Mercadé.

SURGICAL THERAPEUTICS

Loeb, McClurg and Sweek: The Treatment of Human Cancer with Intravenous Injections of Colloidal Copper. *Interst. M. J.*, 1912, xix, 1015. By Surg., Gynec. & Obst.

The authors introduce this important contribution to surgical literature with a short résumé of previous work done along lines of chemo-therapy. With some of this work as a precedent, the authors experimented on mice and other species of tumor-bearing animals, and finally on humans, with various salts and solutions of copper. On the human subjects they used a colloidal solution of copper prepared according to Bredig's method. Each patient received daily an intravenous injection of the solution, an average of 300 to 400 cc. of the solution, warmed to about body temperature, being slowly introduced. Usually six, sometimes seven, injections were given each week.

The injection is invariably followed by a rise of temperature, which varies usually between 100° and 102° F. Within six hours the temperature again returns to the normal level. The rise of temperature is frequently inaugurated and sometimes followed by a more or less severe chill. By diminishing somewhat the quantity of fluid injected, the chill can frequently be avoided. The reaction becomes less after a certain number of injections have been given. Simultaneously with a rising of temperature the pulse rate is usually increased. In certain patients who had a tendency to irregular heart action before the treatment was begun, this irregularity may be accentuated a few hours after the injection. Otherwise no notable changes have so far been observed after the injection.

On the whole patients tolerate these injections very well, and their general condition (appetite, strength, complexion) improves. The number of erythrocytes does not decrease, but on the contrary probably shows a definite increase. The authors describe in detail the effects of the injections on the tumor and on the individual. They relate several case histories and finally draw conclusions which, for the sake of accuracy, had best be presented in their own words, as follows:

"We may state that we are now able to cause the gradual retrogression of human cancer, which until now has withstood various modes of treatment; and furthermore, that the treatment does not seem to be limited to one kind of cancer, but applicable in the effective treatment of various kinds of cancer. Some cases which we have had under treatment for several weeks seem to be near a cure; all others are progressing favorably. A definite judgment on the ultimate outcome must still be suspended at present. Patients in which the growth of metastases is very rapid and extensive and in which the cachexia is already very pronounced cannot yet be benefited by this mode of treatment. We hope, however, that the further investigations which we are carrying on at the present time will lead to a still wider ex-

tension of the applicability of this mode of treatment. In particular, we have made preparations to test the effect of this treatment on other cases of sarcoma, and also in psoriasis.

"There are two more conclusions to which we wish to refer very briefly. In the first place, our provisional opinion, which was the starting point of these experiments — that many cases of human cancer might be more accessible to this mode of treatment than are rapidly growing mouse cancers — has been confirmed by our observations. Secondly, our experiments present very strong additional evidence in favor of the view which one of us has always upheld, namely, that there exists no essential difference between cancer of rodents and human cancer." M. G. Seelig.

ELECTROLOGY

Gray: Röntgenization for Non-Malignant Laryngeal Vegetations. *Am. Quart. Röntgenol.*, 1912, iv, 69. By Surg., Gynec. & Obst.

Four children suffering from papillomatous vegetations of the larynx were treated by Röntgen rays with uniformly favorable results. The vegetative growths were single or multiple and all were situated on or near the vocal cords. The symptoms included not only voice changes but even marked obstruction to respiration.

The value of X-rays in treating these cases is emphasized by the inadequacy of other methods. Recurrence is ordinarily the rule, whereas in radiotherapy the results so far have been permanent.

In each case the dosage employed is given in such terms that it can be easily duplicated by other X-ray workers. The quantities named are moderate and quite within the usual danger limits. The author advises, in addition to the usual protective measures, that as much of the thyroid as possible be screened from the rays. Hollis E. Potter.

Pagenstecher: X-Ray Burns. *Beitr. z. klin. Chir.*, 1912, lxxxii, 301. By Surg., Gynec. & Obst.

Three precautions are necessary in order to avoid burning by X-ray. These are proper usage, the right kind of tube, and the best protective apparatus, together with complete isolation from the rays. There is no such thing as idiosyncrasy against the X-ray. The burn is the result of an absorption of a quantity of rays incompatible with the tissues. This absorption may occur in one or several sittings. The burns may be divided into the following classes: erythema, blistering, necrosis, and cancer formation.

The X-ray ulcer is the most common form. It begins with dermatitis and rapidly attains a larger size, which remains the same, with no tendency to healthy granulation for months. In some instances deep necrosis follows. The author describes a case of ulcer of the abdomen resulting from X-ray burns following eleven sittings within three weeks. Histologically, one observes the usual findings of ulceration with some vacuolization of the connective tissues. The blood-vessels are destroyed and their lumina occluded. The epithelium is the tissue which is damaged most extensively. As to the therapy, Pagenstecher does not find the good results of camphor-alcohol as observed by Windler. He prefers surgical treatment, excision, and plastic repair with flaps or transplantation of Thiersch grafts. Carl Beck.

Jones: Ionic Medication. *Arch. Röntg. Ray*, 1912, xvii, 246. By Surg., Gynec. & Obst.

The author gives a résumé of the results obtained with ionic medication by himself and others. He deals mainly with two ions, zinc for surgical and salicylic for medical application.

The first named has proven of value in simple ulceration of the skin, the mucosa of the nose, mouth, and rectum, and of the cornea; in pyorrhœa alveolaris, in chronic urethritis, in mucous colitis, hæmorrhoids, anal fissure, sinuses, vaginitis and endometritis. Acne, furunculosis, sycosis, lupus and rodent ulcer are favorably influenced by it and it can be used for the removal of warts and corns.

Salicylic ion medication is of value in neuralgias and perineuritides, in painful affections of muscles and fibrous tissues, and in the arthritides of gouty or rheumatoid nature.

Chlorine and iodine ions are mentioned as useful in softening cicatrical tissue, radium in the treatment of sarcomata, mercury in ringworm, and numerous others which may some day be found of value when given in this form. Adolph Hartung.

Skinner: Circulatory Opacity. *Am. Quart. Röntgenol.*, 1912, iv, 75. By Surg., Gynec. & Obst.

In view of the successful application of colloidal silver solution in pyelography, and since the injection of a 5 per cent solution of it into the blood stream is permissible in septic conditions in the light of our present knowledge, the author conceived the idea of using this same method to portray, radiographically, the circulation of the blood in the living being. Although he has not made an attempt to demonstrate this on a living subject, he has injected the blood-vessels of an amputated arm and obtained fair views of them. Adolph Hartung.

SURGICAL DIAGNOSIS

Hagemann: Newer Methods in the Diagnosis of Surgical Tuberculosis. *Beitr. z. klin. Chir.*, 1912, lxxxii, 1. By Surg., Gynec. & Obst.

Next to the clinical symptoms, the investigation of the pathologic excreta plays the most important rôle in the diagnosis of surgical tuberculosis. Tuberculous pus has well-marked gross and microscopic features. The whitish color, thin consistency, with cheesy, greenish flocculi, plus the scarcity of corpuscular elements with predominance of lymphocytes are the distinguishing features. Müller and

Jochmann find that pure tuberculous pus has no digestive action on serum plates owing to the scarcity of leucocytes with their proteolytic ferments. Müller identifies tuberculous pus by bringing it in contact with Millon's mercury solution. Ordinary pus dissolves on the surface with the formation of a red color, while the tuberculous variety forms a fine pellicle. These methods are of value only when the pus is obtained from the closed body cavities.

The demonstration of tubercle bacilli in pus or an exudate is the most certain method of diagnosis of tuberculosis. By direct smear this is frequently impossible because of the scarcity of tubercle bacilli in the excreta. Centrifugalization or sedimentation may facilitate this. The addition of the alkalis of sodium and potassium, or alcohol makes the fluid more homogeneous and favors sedimentation. The antiformin introduced by Uhlenhuth dissolves all organic substances, such as mucus, fæces, keratin, skin, hairs, etc., and dissolves all other organisms except the tubercle bacillus in a concentration of 2.5 per cent. The original antiformin method has been modified by Loeffler, who shakes the material with chloroform and alcohol and finds the tubercle bacilli in the zone above the chloroform. Hagemann has found the bacilli in 31 out of 44 cases of surgical tuberculosis by using Loeffler's method and staining both with Ziehl-Neelson's carbol-fuchsin stain and the gram (Much's) stain. Much's demonstration of a granular gram-positive form of tubercle bacillus not stained by the ordinary carbol-fuchsin shows the necessity of using both stains.

The most reliable diagnostic method heretofore has been inoculation into guinea pigs. The injections may be made intraperitoneally or subcutaneously into the inguinal region. The former method requires 6–8 weeks and in the latter the inguinal gland can be examined in 3–4 weeks. Bloch recommends traumatizing the inguinal glands before the injection. This method may fail because occasionally the bacilli will pass through the inguinal glands and produce a general infection only in 6–8 weeks. Oppenheimer advocates the injection of the material directly into the liver and spleen. In 5 to 19 days he finds miliary tubercles in these organs. Esch injects 1 cc. directly into the heart. This method is dangerous because of the liability to shock and sudden death and is limited to clear fluids. The urine for example, must be neutralized with normal NaOH, centrifugalized, the sediment diluted with physiologic salt solution and warmed before the injection. The injections are made into the third or fourth interspace next to the sternum. Hagemann has obtained evidence of generalized tuberculosis by the intracardiac method on the 10th day, and by the subcutaneous method on the 15th day.

Jacoby and Meyer made use of the increased susceptibility of tuberculous animals toward tuberculin to demonstrate the infection during the life of the animal. They injected 0.5 to 1.0 cc. tuberculin subcutaneously and drew conclusions from the temperature rise and the exitus. The death of the animal alone is of value as normal animals show temperature reactions following tuberculin injections. Esch first used tuberculin intracutaneously to test the reaction of tuberculous guinea pigs. Römer showed that tuberculous guinea pigs react to an intradermic injection of 0.02 tuberculin in a characteristic manner. A swelling the size of a quarter appears in 18–24 hours. This has a bluish red center with a porcelain-white ring around it and a considerable inflammatory areola. In about 4 days the skin necrotizes and a scar remains for a long time. In another form of the reaction the central discoloration is absent and a small necrotic area forms. A third, a typical form with redness and swelling for 48 hours, is described. Hagemann tested the intradermic tuberculin method on guinea pigs infected with tuberculous material and obtained positive results from the 10th day to the 21st day.

The objection to all these methods is the long interval of time involved and the failure in some cases of suspected tuberculosis, especially in the serous exudates. Hagemann has devised a new test to demonstrate specific bodies, either toxins or antitoxins, in the tuberculous material in which no tubercle bacilli can be found. He injects 0.1 cc. of the suspected material intracutaneously into tuberculous guinea pigs and obtains characteristic reactions which normal control animals do not show. The test is made as follows: 0.1 cc. of the material to be tested is injected intradermically into a positively tuberculous animal whose susceptibility is tested by the intracutaneous tuberculin test. An equal amount is injected into a normal guinea pig. As controls, intraperitoneal injections may be made. Pus and exudates may be injected directly. Sputum must first be treated with antiformol, centrifuged and dissolved in salt solution. Highly susceptible guinea pigs are essential and are obtained by inoculating them with $\frac{1}{10}$ mg. tubercle bacilli. They live 6–8 weeks and are susceptible to as small a dose as 0.000002 tuberculin on the 14th day. Hagemann has used this method in combination with the other method with the material from 48 cases of surgical tuberculosis. In two exudates from the knee joint, one ascitic fluid, and one case of pus from a glandular abscess, the intracutaneous method alone showed positive tuberculosis.

The specific reaction produced by tuberculous material shows all the characteristics of the intradermic tuberculin reaction. A visible swelling of the skin appears in 24–48 hours, showing a bluish-red center surrounded by a porcelain-white ring and an inflammatory zone. Control animals never react typically. Ordinary pus produces inflammation of the skin both in tuberculosis and control animals.

Hagemann concludes that he has a specific biological reaction for tuberculosis which allows of a positive diagnosis of suspected tuberculous material in 24 to 48 hours, and which is especially of value in cases in which tubercle bacilli cannot be demonstrated by other methods. ERWIN P. ZEISLER.

GYNECOLOGY

UTERUS

Rabinovitz: Myoma of the Cervix Uteri. *Surg., Gynec. & Obst.*, 1912, xv, 668.
By Surg., Gynec. & Obst.

The author calls attention to the fact that cervical myoma is rare, the average of the statistics from six clinicians being 3.3 per cent of all myomata. He considers the subject under the following headings: 1. The report of a case of true cervical myoma. 2. The definition and classification of cervical myoma. 3. A consideration of the pathology and etiology of cervical myoma. 4. The relation of cervical myoma to conception, pregnancy and labor. 5. Treatment. 6. A tabulation of 132 cases of cervical myoma recorded in the literature since 1885.

For practical purposes he would classify cervical myoma into supravaginal and intravaginal. Pathologically, cervical myoma differs from corporeal myoma only by its greater tendency to encapsulation and that it more frequently sends off shoots into the surrounding structures. The etiology is as yet not established. Recent studies on the internal secretion of the ovary, while still in the process of crystallization, hold out new hope. Clinically, this theory is adequately supported. C. H. Davis.

Faure: Surgical Treatment of Cancer of the Cervix (Sur le traitement chirurgical du cancer du col de l'utérus). *Arch. mens. d'Obst. e. d. Gynéc.*, 1912, i, 149. By Journal de Chirurgie.

Faure states the conclusions drawn from a series of 250 operations performed for cancer of the uterus since 1896.

1. In early cancer, which has only invaded one lip of the cervix and in which the vaginal cul-de-sac is still flexible and the mobility of the uterus is unimpaired, the operative mortality does not exceed 5 per cent. Complete cure is the rule and recurrence the exception. Faure has cures of 8, 10, and even 14 years' duration.

2. When the lesions are more extensive, involving both lips of the cervix, the vaginal mucosa, and the base of the broad ligaments, with accompanying decrease in the mobility of the uterus, the operative mortality rises to 20 per cent; and in only 50 per cent of the cases is there a permanent cure.

3. When the mobility of the uterus is almost lost, owing to extensive invasion of the culs-de-sac and of the broad ligaments, the operative mortality is 50 per cent and over, and recurrence is the rule. Yet, while a cure is here the exception, it is still a possibility which warrants the operation.

4. The operative mortality in the whole series was 15 per cent, with 33 to 40 per cent permanent cures.

Wertheim's abdominal hysterectomy is the operation of choice. Schauta's vaginal operation is indicated only in cachectic or very obese cases or in those in which, owing to the extent of the involvement, palliative measures only are possible. In Wertheim's operation the uterus, the upper portion of the vagina, and the parametrium are excised en bloc. The incision should be through normal tissues and yet not too far removed from the new growth. The hypogastric glands are removed only when they are found to be palpable. A well-perfected technique is a necessity. Preliminary ligation of the hypogastric arteries is very useful. They are to be found by enlarging the incision into the broad ligaments by the aid of the fingers. The adnexa are removed in one piece with the uterus, but if this proves awkward they are excised separately. The isolation of the ureters is an indispensable step. They are found by retracting the posterior surface of the broad ligaments, to which they are adherent. Preliminary catheterization is useless. The ureters are very rarely invaded by the neoplasm. The uterosacral ligaments are carefully clamped and cut. The vagina should not be divided between two clamps. If its anterior wall is first incised, it is possible to complete the division under control of the eye, thus ensuring an incision through normal tissues. The vagina should be scrupulously disinfected before operation. A drainage tube and two gauze drains are placed in the vagina and the peritoneum is closed above. In certain cases it is better to begin the operation by the vaginal route. The vagina is divided 2 cm. below the involved tissues and the upper segment closed with purse-string suture. An abdominal hysterectomy is then performed. In cases of pregnancy, the operation is, if anything, more easily performed.

Treatment with radium should not be begun before the operation, because of its sclerosing action on the tissues, which complicates the procedure of isolating the ureters. The application of radium three weeks after operation is, on the other hand, very useful. M. Guimbellot.

Boldt: Which Is the Best Operation for Cancer of the Uterus? *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Boldt stated that vaginal extirpation of a carcinomatous uterus gave a lower primary mortality, particularly the method of vaginal hysterectomy generally employed, than the extended abdominal hysterectomy. It must be conceded, however, that in cancer of the cervix the percentage of recurrences

was larger after cancer operations where vaginal hysterectomies were done.

When one decided upon vaginal extirpation, the technique devised by Schauta, of Vienna, whereby the ureters were exposed and the uterine arteries isolated and tied so that the parametria might be extensively extirpated, was the method that should find preference. The paravaginal section, which was a necessary accompaniment of the operation, would, if surgical precautions were used, give no more trouble than any ordinary wound. With the paravaginal section one secured satisfactory access to the field of work, which without it would be a physical impossibility.

Despite its great superiority over the regular hysterectomy, the method of hysterectomy usually employed, it should be limited to obese women, the incipient stages of epithelioma of the vaginal part of the cervix, and to cancer of the body of the uterus, when the uterus was freely movable. It was particularly applicable in the cases of the aged, because of the greater sluggishness of the lymphatic system in persons well advanced in years. Generally speaking, however, the extended abdominal operation should be done unless there was a contraindication for doing such an extensive operation. One could undoubtedly remove more parametrium through the abdominal route. Furthermore, one could inspect the glands and extirpate them if the abdomen was opened, which could not be done when the vaginal route was used. The remote results showed that if the abdominal operation be done properly the ultimate percentage of recoveries from cancer of the uterus was fully 50 per cent more than by the vaginal route. But one must really do the extended operation, not the original panhysterectomy first done by Freund for cancer of the uterus. E. S. Talbot, Jr.

Wyatt: Report of Eight Cases of Prolapse Treated by LeFort's Operation. *Proc. Roy. Soc. M.*, 1912, vi, 59. By Surg., Gynec. & Obst.

Wyatt gives a brief history of this operation, calling attention to the fact that it is of great value in cases of procidentia in old people, where any form of pessaries fail to keep the womb in position, and where, either on account of age or from the condition of the abdominal wall, a laparotomy for fixation methods is contraindicated. The method used by Tate prevents any question of active sexual life, so that it has been performed only on single women, or women who no longer lead actively sexual lives. Wyatt reports two of his own and six cases operated upon by Tate. C. H. Davis.

[Monograph.] Schauta: The Extended Vaginal Total Extirpation of the Uterus in Carcinoma Cœli (Die erweiterte vaginale Totalextirpation des Uterus bei Kollumkarzinom). Vienna and Leipzig: J. Safar. By Surg., Gynec. & Obst.

The attention of surgeons has been so actively centered within the last few years on the wide removal of tissue surrounding carcinoma of the cervix uteri that a review of Schauta's work on the extended vaginal operation will be of interest.

He draws attention to Schuchardt's description of his technique, in 1893, and says that while the importance of gland removal, as shown by Clark and Ries in 1895, lent an impetus to the abdominal operation, yet the expectations after the removal of the glands were not realized. He states that vaginal operations are tolerated best and proposes to prove, first, that gland removal is not necessary, and second, that as much parametric tissue can be removed by vagina as per abdomen.

Schauta states that the first proposition is proven by almost all cases with involved glands having recurrences. The few cases not recurring do not disprove this rule, in view of the increased length of operation in the gland removal.

He states that his second proposition is true, and gives numerous cuts showing the amount of parametric tissue removed with the uterus. He expresses a doubt that surgeons would have abandoned the vaginal route except for the gland removal, and has himself refused the consideration of gland removal from the start. He wishes the vaginal operation called "the extended vaginal total extirpation."

In Chapter II the technique as developed in 258 cases is given. It aims to remove as much of the parametric tissue as possible, and at least one third of the vagina. Usually this can only be accomplished by the paravaginal cut and the separation of the ureters.

In the preliminary treatment of the carcinomatous cervix, the operator, assistants, and nurses wear gloves and a special set of instruments are used. The carcinomatous mass is thoroughly curetted and cauterized and the cavity tamponed. The vagina is now disinfected, the instruments are removed, and the gowns and gloves used by the operator and assistants are changed for fresh ones. The circular incision of the vagina is begun ordinarily at the junction with the middle and upper third — in severe cases at the middle; in extensive metastasis in the vagina, the entire vagina should be removed. This circular section is begun by grasping the vagina at the desired points with clamps or volsella and incising the wall external to them. The separation is then completed by blunt dissection up to the cervico-vaginal junction. The vaginal cuff thus formed is stitched closely together with several strong silk sutures, left long for the purpose of traction on the attached uterus. In this way the diseased area is closed off from the field of operation. The gloves are now changed, as also are the instruments that were in use. Schauta now

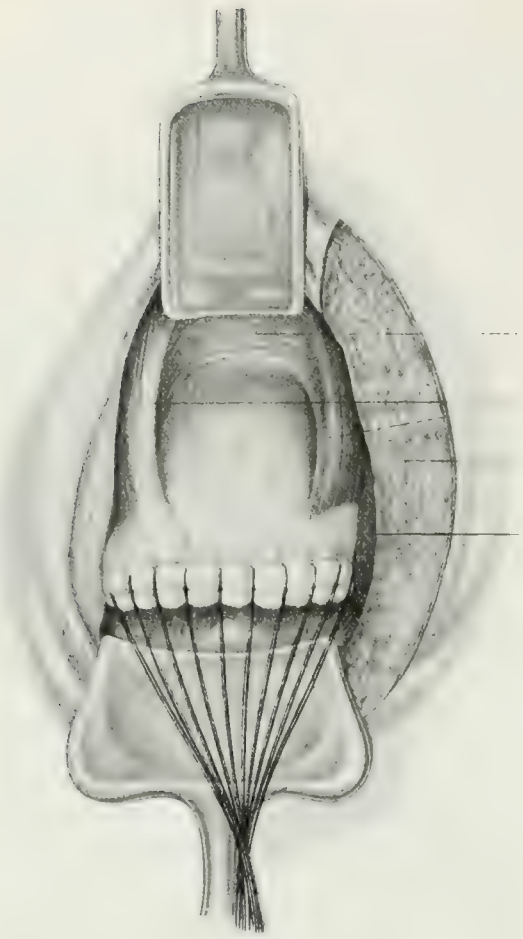

Fig. 1. The extended vaginal operation at the end of the fourth step. The circular cut, cuff, separation of the bladder in its middle portion and the perineo-vaginal cut are done. The pillars of the bladder are still in connection with the parametria and cover the uterine vessels and the ureters.

separates the bladder in the middle line, and the so-called pillars of the bladder are carefully separated, differing from Schuchardt in doing this before the paravaginal cut is made in order to be able to abandon the operation if the carcinomatous involvement is too extensive. The ureters are not exposed until after the vaginal cut. If the carcinoma involves the bladder and a complete removal is found impracticable, the operation is abandoned and the separated parts are removed by the cautery.

Schauta delays the paravaginal cut until after the separation of the vaginal portion, the formation of the closed cuff, and the separation of the bladder to a sufficient extent to prove that a continuation of the operation is permissible. In this order of operating he differs from Schuchardt, who makes the paravaginal cut — or as Schauta calls it, "the perineo-vaginal" cut — first. Schauta claims an advantage in his procedure, not only on account of avoiding the trauma and the subsequent repair in the event of the necessity of abandoning the operation, but in avoiding as much as possible infection and carcinomatous implantation in the perineo-vaginal incision. He follows Schuchardt in commencing this cut in the vagina at the point of the commencement of the circular cuff, where the lateral wall goes over on the posterior wall. From this point the incision is continued outward and progressively deeper to the posterior end of the labia majora, and in depth to a point near the posterior and lateral margin of the anus.

Isolation of the ureters. Experience in 258 cases proves to the author that this can be done without the aid of ureteral catheters. The bladder separation already commenced is now continued well up anteriorly and laterally. Underneath the pillars

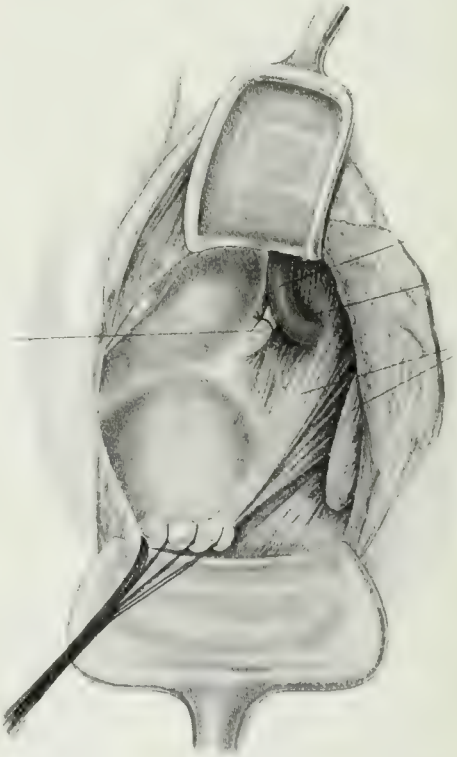

Fig. 2. Fifth step. The pillars of the bladder separated from the parametria and pushed forward. This makes the upper margins of the parametrium with the ureter slit, its loops, and the uterine vessels visible, which latter go here behind the ureter toward the lateral edge of the vagina. The vaginal cuff is pulled aside and downward, so that the ureter forms a sharply curved loop.

of the bladder and at the level of the internal os the ureters are found.

He divides the cases into two kinds. In one the connective tissue is not infiltrated and is easily separated. In such instances of soft elastic tissues, the pushing up of the pillars of the bladder and the separation of its posterior wall from the parametrium also separates the few fibers of the parametrium covering the ureter, forming the ureter slit. In this way the ureter goes up with the bladder and is not seen during the operation. Such cases, however, are rare.

In the other and larger class, where there is infiltration of the parametrium on one or both sides, the ureteral slit over the parametrium of the involved side is fixed, and the ureter remains in position to be dissected out. On exposure of the anterior face of the parametrium the ureter will be seen in a sharply angled loop, with the uterine artery above. The difference in curve from that of normal, is due to the downward and lateral traction on the uterus and the parametrium, thus pulling the ureter with it. At the exposed point the separation of the ureter from the parametrium is made either by blunt or sharp dissection. With wide retraction of the separated bladder and ureters, the uterine artery and vein are tied well out to the side. Schauta uses silk.

The cul-de-sac is now widely opened, after separating the rectum posteriorly. The parametrium is thus exposed on both sides and is cut through far out on the lateral walls of the pelvis, with the finger posterior and retraction anterior as guides. In this separation a branch of the middle hæmorrhoidal artery will be cut, otherwise there will be only venous bleeding. Schauta objects to using ligatures on the parametria, stating that portions will be left in the grasp of the ligature, which should be removed. The venous oozing is checked by the application at once of a firm compress, while the parametrium of the opposite side is similarly removed. He remarks on how surprisingly movable apparently fixed parametrium becomes after it is separated above and below.

The division of the tissues well out on the side walls of the pelvis being accomplished, the bladder peritoneum is now opened, and the uterus is only held by its broad and round ligaments. These are tied off in several small mass ligatures, which are left long to pull down the stump, the ovaries and tubes if healthy being allowed to remain on both sides, since he states that in no instances except in cancer of the body of the uterus are these the seat of metastases, and their removal would unnecessarily complicate the operation in preventing the extraperitoneal treatment of the ovarian stumps.

After removal of the uterus with its attached parametrium, the field of operation is gone over and all bleeding points are enclosed in ligatures. The venous bleeding will have already ceased. The peritoneal edges are now carefully closed, the ovarian stumps being drawn down into the wound by the attached ligatures, and made extraperitoneal by being stitched into the angles of the united peritoneal edges. The raw area is loosely packed with gauze.

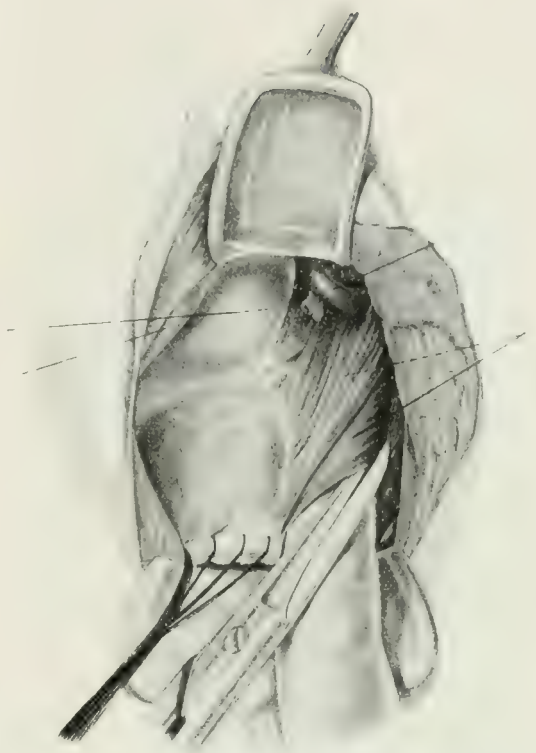

Fig. 3. This plate shows the operation at the end of the sixth step. The ureters, as in Fig. 1, are pulled downward and to the right side. The uterine artery and vein are ligated and cut through. This frees the ureter, which is pulled farther upward, so that its curve is more rounded than in Fig. 2. The parametrium is free, as far as the lateral portion, which in the illustration is hidden behind the corresponding part of the perineo-vaginal cut but can be made accessible by spatula. The index finger of the left hand is introduced into the open cul-de-sac. The scissors commence to cut through the left parametrium almost in a horizontal direction and from the lower lateral edge.

The perineo-vaginal incision is now closed and the operation is completed. The gauze drain is not usually removed completely until the eighth day, on account of the tendency to collapse of the vaginal tube.

Operability. Schauta does not include among the cases reported any abdominal operations for carcinoma, or carcinoma of the body, or for recurrences, or operations on private patients. From June, 1901, to June, 1907, 564 cases came to the clinic. Deducting 35 who refused operation his operability

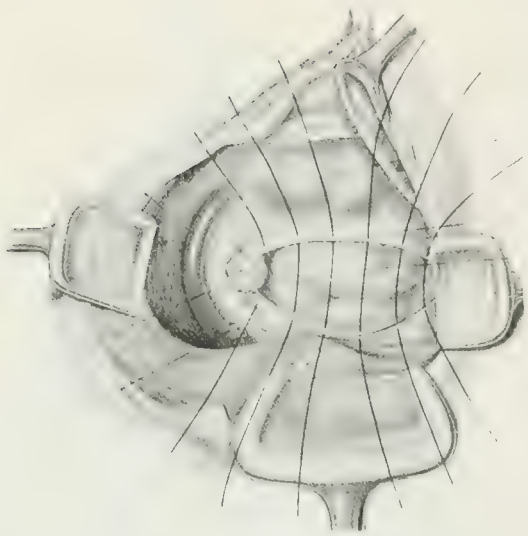

Fig. 4. Sutures through the peritoneal edges. In the right corner the stump of the broad ligament is fixed by a suture passing through it. At its outer side the ureter curves from the post-pelvic wall to the bladder. Posterior are the ligated uterine vessels of the right side.

was 258 cases or 48.5 per cent,[1] distributed as follows: In 1901, 43.9 per cent; 1902, 33.3 per cent; 1903, 45.1 per cent; 1904, 54.4 per cent; 1905, 62.8 per cent; and 1906, 55.2 per cent. He draws attention to the increase of the operability through the extended vaginal operation over the average vaginal extirpation, which is 14.7 per cent.

With 325 patients from 1904 to 1907, he asked the following questions suggested by Winter:

1. How long after the appearance of the first symptoms did the patient ask for medical advice?
2. What has the physician done?
3. What was the difference in time between the advice given for operation and that of visiting the clinic?

He finds that in answer to question No. 1, 21.8 per cent asked for medical advice within the first month; 20 per cent after three months, and the rest later. In answer to the second question, he finds that 318 called in regular physicians, of which 251 were examined immediately and 216 sent to specialists. In answer to this third question, 78 per cent sought the clinic within the first week after receiving advice.

Schauta states that, from a study of his cases, if all had acted in the promptest and most favorable manner on the three questions, 87 per cent would have been operable, a small number giving no early symptoms. He lays great emphasis on instructing the public as to the first symptoms of cancer of the uterus and in seeking medical advice promptly. He quotes Winter as stating that all cases in which the vaginal vault is only slightly encroached on and in which the infiltration of the parametrium is only in the vicinity of the cervix are operable. Winter only excludes cases with infiltration down to the pelvic wall.

Schauta says: "My opinion has been changed since I have been performing the extended vaginal total extirpation. Even the infiltration of the total parametrium is not a contraindication provided the tumor mass is, on examination under ether, only slightly movable, since in its removal ligatures are not used." Histological examination has shown

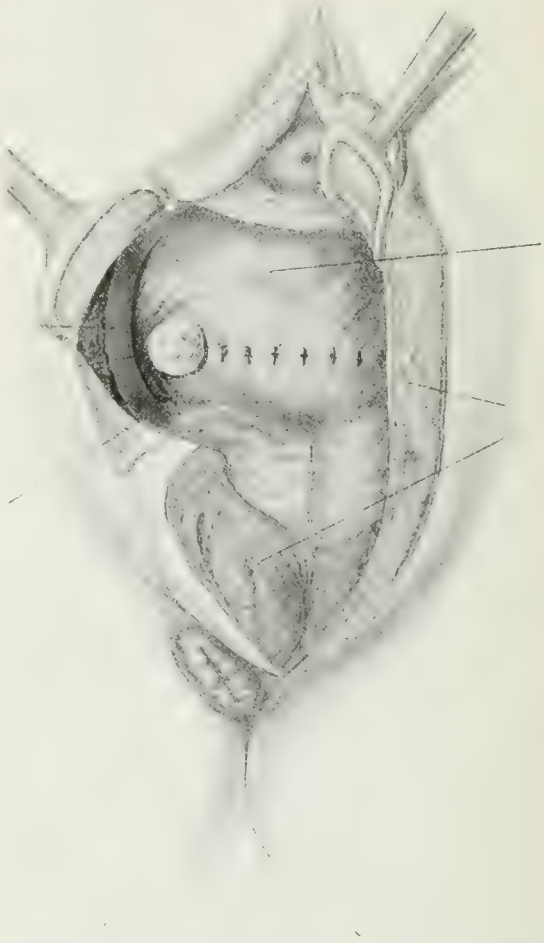

Fig. 5. The operation is finished. Peritoneal sutures tied. In the illustration one sees the stump of the broad ligament fixed in the right corner of the peritoneal edges, the curve of the right ureter and the stump of the uterine vessels of the right side. There remains only the suture of the perineo-vaginal cut to be made.

[1] Schauta, Monatschr. f. Geburts. u. Gynäk., 1911, xxxiii, 680. In ten years' experience, 910 patients applied to clinic (not including cancer of the body); 44 refused operation; 445 were operated on (51.3 per cent operability); 40 died (8.9 per cent mortality). The mortality, however, within the last 3 years has been reduced to 3.7 per cent.

that the parametria infiltrated even to the pelvic walls may not be carcinomatous, while at times even apparently free parametric tissue may contain carcinomatous foci. He regards extension toward the bladder as the gravest prognosis, and cystoscopic findings of bullous œdema, protrusion of the trigone, and displacement of the ureter add to the gravity of the condition, though not absolute contraindications, on account of the possibility of resecting the base of the bladder. The mortality, however, is high.

Schauta, after having had 101 operable and 57 inoperable cases cystoscoped, gives it as his opinion that cystoscopy has no decided value in determining the operability of the case. He does not regard the involvement of the vagina any contraindication, since it is possible to remove the entire vagina.

Mortality. He divides his cases into three classes:

1. Easy cases in which the parametrium was free, of which there were 79.

2. Those with infiltrated parametrium, including 126 cases.

3. Border-line cases as to operation, 53.

In 1901–2, 56 cases, a mortality of 19.1 per cent.
In 1902–3, 30 cases, a mortality of 3.4 per cent.
In 1903–4, 41 cases, a mortality of 10.8 per cent.
In 1904–5, 53 cases, a mortality of 8.1 per cent.
In 1905–6, 55 cases, a mortality of 12.2 per cent.
In 1906–7, 51 cases, a mortality of 8.5 per cent.

Total..258 ..... 10.8 per cent.[1]

He compares this mortality with that of ordinary vaginal hysterectomy, and states that there is practically no difference; giving in evidence the following statistics:

Ordinary vaginal hysterectomy
Schauta..... 10.3 per cent.
Güsserow..... 14.4 per cent.
Olshausen..... 12.7 per cent.
Fritsch..... 6.6 per cent.

Eight cases died of sepsis, eight of pulmonary complications, and two of thrombosis.

Injuries to the bladder and ureter. He states that in no instances were the ureters injured in easy cases. In grave cases, 126 in number, there were injuries to the ureter in 6 cases, or 4.7 per cent. In cases on the border line of operability, 53 in all, the ureters were injured in 5 instances, or 9.4 per cent.

In all cases, injuries of the bladder and the ureters was 8.5 per cent. He compares this with ordinary vaginal hysterectomy, in which like injuries are 5.6 per cent (Döderlein and Krönig, 1907).

Permanent cures. Schauta divides his cases into those who have been under observation for 2, 3, 4, and 5 years, and states that 77.7 per cent of all recurrences occur within the first two years. If no recurrence has taken place within this time he believes the probabilities of the cure are most encouraging. His results are as follows:

After 2 years 47.2 per cent had no recurrence.
After 3 years 43.7 per cent had no recurrence.
After 4 years 44. per cent had no recurrence.
After 5 years 38.2 per cent had no recurrence.

Absolute efficiency. His absolute efficiency, reckoned according to Winter's formula for cases having no recurrence after five years, is 12.6 per cent.[2]

Gland removal. In 60 post-mortem examinations on cases having uterine cancer (distributed as follows: Dying from operation, 11; from other causes, 9; from cancer, 40) he found that of the 40 dying from cancer and without operation 43.3 per cent were free from carcinomatous metastasis in the glands. Of all 60 post-mortems, 23 showed no pelvic or aorta glands were involved, 8 showed involvement of the pelvic but not of the aorta glands, 21 showed "involvement" of both, and 5 showed involvement of aorta glands only. Of the 34 cases of gland involvement, only 8, or 13.3 per cent, could have been benefited by regional gland removal.[3]

Schauta's deductions from the above studies are that, in general, gland removal is not of material benefit to the patient.

A detail of the findings, operations, and recovery of each of the 258 cases reported is given in full.

LeRoy Broun.

[1] In Monatsch f. Geburts. u Gynak., 1911, xxxiii, 680, he states that in 445 cases his mortality was 8.9 per cent, and that within the past three years his mortality has been 3.7 per cent.

ADNEXAL AND PERIUTERINE CONDITIONS

Primrose: Hæmorrhage into the Peritoneal Cavity Caused by Accidental Rupture of the Ovary. *Univ. Toronto M. Bull.*, 1912, i, 18.
By Surg., Gynec. & Obst.

The author records two cases which were not connected with pregnancy. In both what appeared to be a normal Graaffian follicle had ruptured as a result of an accidental strain. In the first case the patient lifted a heavy weight and the rupture occurred immediately. In the second case the patient had a violent attack of vomiting in the early stage of an acute appendicitis and the rupture occurred then. In both there was a serious hæmorrhage into the peritoneal cavity, nearly proving fatal in one case. The author attributes the rupture to the fact that the ovaries were congested because the women were within two days of the menstrual period. The Graaffian follicles were under tension at that time and the increased abdominal strain was sufficient to cause their rupture.

[2] Schauta, Monatschr. f. Geburts. u. Gynäk., 1911, xxxiii, 680. During the first five years of the ten-year period covered by this paper, 477 applied at his clinic; 211 were operated on; with non-recurrence in 73 after five years, or 39.7 per cent, giving an absolute efficiency of 16.6 for all cases seen in this period.

[3] Wertheim states in his admirable monograph, 1912, reporting the results of operations by the abdominal route on 500 cases, that in instances of involvement of the lymph glands the outlook is gloomy, there being 87 per cent recurrences. In other words, only 13 per cent were benefited. This is a remarkable agreement with the results of Schauta's study.

The author urges that more attention be paid to the rupture of a Graaffian follicle as the cause of internal hæmorrhage in women. He believes that it is more frequent than the majority of text-book writers lead us to infer. In ectopic pregnancy he advises examination of both ovaries, as the one not connected with the pregnancy may have a ruptured follicle. The diagnosis between this condition and ectopic pregnancy is not always easy and the final decision is often made when the abdomen is open.

E. L. CORNELL.

Polak: A Further Study of the End Results of the Conserved Ovary. *J. Am. M. Ass.*, lix, 2138.
By Surg., Gynec. & Obst.

Polak attempts in this paper, from a study of 229 personal cases, to differentiate between and draw conclusions from the end results of the resected as compared with those of the conserved ovary. He furthermore calls attention to the lack of a thorough understanding of the living pathology of the ovary and its supports, and of the failure to appreciate that the position of the conserved or resected ovary is the important factor in its subsequent behavior.

The natural and proper conservation of the ovary consists in leaving it alone, or of placing it in such a position that there is no obstruction to its afferent and efferent circulation, or twisting of its ligament.

Interference with the efferent circulation is rapidly followed by changes in the ovarian structure, such as swelling from passive congestion, increase in stroma, thickening of the tunica and cyst formation.

As a result of his analysis he draws the following conclusions:

1. Only healthy ovaries should be conserved.
2. The right ovary when conserved is less prone to subsequent inflammatory changes than the left.
3. All retained ovaries or portions of ovaries should be placed in such a position, that their circulation is not interfered with.
4. Resection gives the best results when its application is limited to large monocysts, retention cysts, fibroids and dermoids.
5. The multiple cystic ovary should not be resected. Leave it alone or take it out.
6. A resection should be extensive. The suture line should just be approximated, not constricted, and covered with a reflexion of peritoneum.

Andrews: Ovarian Teratoma Containing Brain and Well-Formed Intestine. *Proc. Roy. Soc. M.*, 1912, vi, 54. By Surg., Gynec. & Obst.

M. Z., aged 29, six children, last one year ago; pain in abdomen. Operation was performed and tumor of right ovary, size of tangerine orange, and a left ovarian cyst were removed. Inside the tumor there was a quantity of sebaceous material and some hair. The wall of the cyst for the most part was smooth and white. An area about 5 cm. in diameter was occupied by the following structures: (1) In the center was a nodule 1.5 cm. by 1 cm., having a smooth, slightly convoluted surface of yellowish color and suggesting brain; (2) encircling this was a rounded ridge which had a pitted, white epidermal surface from which sprouted numerous black hairs; (3) from one extremity of this ridge there rose a tubular structure which projected into the cyst but was attached by a mesentery. At the base of this tube the knife struck bone.

Sections of the first area showed a quantity of nerve tissue in which there were glia cells with an abundant network of fibrils. There were also numbers of nerve cells of various sizes and shapes; also some tubular portions of neural canal lined by small cubical epithelium. From the surface of the nervous tissue a nerve root passed beneath the narrow layer of dermis and epidermis. It had a fibrous sheath and passed to a large ganglion. A transverse section through the tube showed all the layers of the gut wall, with a nerve ganglion between the coats.

C. H. DAVIS.

Huffman: A Malformation of the Fallopian Tube. *Surg., Gynec. & Obst.*, 1912, xv, 680.
By Surg., Gynec. & Obst.

The tube in this case was removed from a virgin in conjunction with a fibromyoma of the uterus. From its external appearance the tube might have passed for normal, but more careful inspection showed a double lumen in the region of the inner half of the ampulla. While two tubes were here evident the diameter of the two together did not exceed that of a normal tube. From the posterior aspect the posterior tube appeared to end blindly at the junction of the anterior with the isthmus, but serial sections revealed an anteroposterior communication between the two. Both tubes communicated directly with the outer portion of the ampulla. Each had separate well developed circular and longitudinal muscular walls, but both were held together by a common subserosa and peritoneal coat. The mucosa in each appeared normal.

Huffman reports this case as of interest not only embryologically but as well with respect to tubal pregnancy. The implantation of the ovum in an anomalous embedding area is no doubt of some etiological significance. Another point of interest in regard to anomalies of the tubes is their association with fibromyomata of the uterus, as was the case in this instance.

CAREY CULBERTSON.

MISCELLANEOUS

Bovée: The Application of Iodine to the External and Internal Generative Organs of Women in the Treatment of Infections and Preparation for Surgical Operations on the Same. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

The conditions in which this treatment was applicable were given by Bovée as follows: (1) Acute infections of the vulva, vagina, urethra, and

the whole of the endometrium. (2) Acute peritoneal infections with proper limitations. (3) Chronic conditions following infections of these structures and of the tubes, ovaries, and pelvic peritoneum. (4) In pelvic surgery requiring examinations, manipulations, or operations on or through the vagina. (5) In such procedures as required opening the cervical canal or uterine cavity from either the vaginal or peritoneal side. (6) As a routine method of preparation of the field of operation on all these structures, as well as the rectum.

For several years he had confined the treatment of recent and remote Neisserian infection of the vulva, urethra, vagina, and cervix to the application of iodine. He had great confidence in the efficacy of this remedy when applied early. If the condition might be treated before the infection had passed into the uterine cavity or the glands of Bartholin, it could often be eradicated by one thorough painting of the exposed areas below the uterine cavity. If the first application failed, a second made three days later commonly succeeded. In pelvic surgery that required examinations, manipulations, or operations on or through the vagina, this plan of local sterilization was far superior to any other he had used. The importance of the vaginal application of iodine was emphasized in the radical operation for cancer of the cervix uteri. The high mortality from infection of the peritoneum, as a result of breaking of the specimen during its removal and the resulting leakage, was a striking feature of the recent report of Wertheim's work in this field. This sad complication was best obviated by the use of the iodine in both the vagina and endometrium, preceded by galvanocauterization, with or without curettement, if excrescences or craters be present. Since the etiology of cancer was not known, he would warn against driving any cancer material beyond the uterus by employing considerable pressure in injecting that organ. E. S. Talbot, Jr.

Ferguson: Twentieth Century Problems in Relation to Marriage and Childbirth. *J. Obst. & Gynec. Brit. Emp.*, 1912, xxii, 317.

By Surg., Gynec. & Obst.

This article, Dr. Ferguson's presidential address before the Edinburgh Obstetrical Society, is largely philosophical in nature but concludes with statistics on puerperal infection and accidents of labor that are well formulated:

DEATHS FROM PUERPERAL SEPSIS (ENGLAND AND WALES)

1901	2.24 deaths per 1000 births
1902	2.14 deaths per 1000 births
1903	1.82 deaths per 1000 births
1904	1.80 deaths per 1000 births
1905	1.88 deaths per 1000 births
1906	1.80 deaths per 1000 births
1907	1.66 deaths per 1000 births
1908	1.46 deaths per 1000 births
1909	1.64 deaths per 1000 births

a decline of 30 per cent from the death rate of 1901.

DEATHS FROM ACCIDENTS OF CHILDBIRTH (ENGLAND AND WALES)

(Not including puerperal deaths where kidney, cardiac, pulmonary, or other intercurrent affections produced fatal results during pregnancy, and which are included in Scottish puerperal statistics.)

1901	2.49 per 1000 births
1902	2.34 per 1000 births
1903	2.33 per 1000 births
1904	2.14 per 1000 births
1905	2.34 per 1000 births
1906	2.27 per 1000 births
1907	2.24 per 1000 births
1908	2.09 per 1000 births
1909	2.14 per 1000 births

ALL DEATHS FROM PUERPERAL SEPSIS AND ACCIDENTS OF CHILDBIRTH (ENGLAND AND WALES)

1901	4.65 per 1000 births
1902	4.54 per 1000 births
1903	4.09 per 1000 births
1904	3.93 per 1000 births
1905	4.20 per 1000 births
1906	4.04 per 1000 births
1907	3.90 per 1000 births
1908	3.67 per 1000 births
1909	3.77 per 1000 births
1910	3.56 per 1000 births

Annual death-rates from puerperal sepsis and accidents of childbirth to a million persons living in successive quinquennia, 1876–1910 (England and Wales), were as follows:

For the 5 years.

1876–1880	142.0
1881–1885	165.0
1886–1890	142.6
1891–1895	167.8
1896–1900	137.6
1901–1905	120.4
1906–1910	97.8

During the 10 years 1897–1906 puerperal fever and the accidents of pregnancy and childbirth caused the death of 1 mother to every 228 births in England and Wales.

1907	1 mother to every 261 births.
1908	1 mother to every 280 births.
1909	1 mother to every 270 births.

REPORT OF M. O. H. FOR GLASGOW, 1911.

Attended by	Births	Puerperal Fever Cases	Rate per 1000 Births
Doctors	10,399	31	3.0
Midwives	12,446	82	6.6
	22,845	113	4.8

REPORT OF M. O. H. FOR GLASGOW, 1911.

Attended by	Births	Puerperal Fever Cases	Rate per 1000 Births
Doctors	10,353	44	4.2
Midwives	12,133	89	7.3
	22,486	133	5.7

Showing relative proportion of confinements attended by medical man and midwife (certified and uncertified) in the undernoted places.

Glasgow	46	54
Perth	72.7	27.3
Ayr	50.6	49.4
Renfrewshire	82.1	17.9
London	75—	25.+
Derby	about 25	75
Coventry	20	80
Liverpool	26	74
Nottingham	45	55
Average of above	50.8	49.2

CAREY CULBERTSON.

Norris: Sterility in the Female without Marked Gross Pathology; Report of Thirty-five Cases. *Surg., Gynec. & Obst.*, 1912, xv, 706.

By Surg., Gynec. & Obst.

Norris considers that a marriage may be considered sterile at the expiration of two years where no children have been born and no means employed to prevent conception. The responsibility of the husband is rated variously, according to different investigators but statistically it varies from 16 to 50 per cent. Sterility may be primary or acquired, absolute or relative. In the United States in 1900 twenty per cent of native marriages were unfruitful while among the foreign element this proportion was reduced to thirteen per cent.

Congenital malformation of the genital tract is the most frequent cause of sterility. The uterus is probably most often at fault, the infantile type being most often encountered. Stenosis of the cervical canal is not infrequent. Anteflexion and narrowing of the upper portion of the vagina is frequently associated with hypoplasia of the uterus which is also present where there are disturbances of the various internal secretions of the hypophysis, thyroid, adrenals, etc. Stenosis of the cervical canal and anteflexion of the uterus are also accountable for a certain proportion of cases. Mild cervicitis, providing a plug of thick tenacious mucus, is occasionally present as a cause for sterility, as is the so-called endometritis fungosa. Mild forms of salpingitis, vaginismus and spasm of the uterine ligaments are other causes mentioned where pathologic lesions are not marked.

Under treatment, the author discusses dilatation of the cervix and the Pozzi and Dudley operations, and strongly favors the stem pessary as devised by Carstens or Wylie. He regards the objections to this instrument as greatly overestimated. The importance of thorough cervical dilatation preceding the introduction of the pessary is emphasized, as is the necessity of first excluding the possibility of pelvic inflammatory disease and any form of gonorrhœa. Curettage at this time is deemed unwise, as are subsequent douches.

Of the thirty-five cases possessing such minor defects as are here discussed, all of whom were sterile for from two to twenty-eight years, thirteen conceived. Pregnancy occurred in three while the pessary was in situ. Seven of the failures have been operated upon less than one year and in some of the earlier cases the fecundity of the husband had not been proven.

Norris' conclusions are as follows: (1) One in every seven or eight marriages is sterile. About fifty to seventy-five per cent of these are due to sterility of the woman. (2) Sterility may be the result of a variety of causes, both local and general. The success of the treatment depends upon the correct diagnosis of the etiological factor present in each case. (3) Excluding gonorrhœa, the three most frequent local causes productive of sterility are hypoplasia of the uterus, constriction of the cervical canal or a mild grade of cervicitis. (4) The routine practice of subjecting all cases of sterility to some form of dilatation operation, often without even ascertaining if the woman be the partner at fault, cannot be too severely condemned. (5) When hypoplasia of the uterus, a constriction of the cervical canal, or anteflexion is present, the stem pessary offers an excellent means of treatment. It produces permanent dilatation, as proven by the fact that it cures more than eighty-six per cent of cases of expulsive dysmenorrhœa. The stem pessary tends to produce development in those cases of hypoplasia of the uterus and by the drainage secured, often cures, and in all cases facilitates the treatment of endocervicitis of non-gonorrhœal origin. It also straightens out flexions. In the gynecological department of the Hospital of the University of Pennsylvania, this form of treatment has been successful in thirty-seven per cent of cases of sterility. (6) No ill effects have followed this form of treatment in any of the cases operated upon for either sterility or dysmenorrhœa. This now comprises a large series of cases. It is essential that gonorrhœa and the various forms of pelvic inflammatory disease be excluded. CAREY CULBERTSON.

[Monograph.] **Gauss and Lembcke: Deep X-Ray Therapy, Its Theoretical Principles, and Its Clinical Results** (Röntgentiefentherapie, ihre theoretischen Grundlagen, ihre praktische Anwendung und ihre klinischen Erfolge). Universitäts Frauenklinik, Freiburg. Berlin and Vienna: Urban & Schwarzenberg, 1912.

By Surg., Gynec. & Obst.

The use of ill-adapted X-ray tubes has been principally to blame for the tardy development of penetrative therapy. Soft and medium soft tubes allow of no effective raying of deep-lying ovaries. Perthes, in experimental work, was able to show that rays from hard tubes decreased less in quantity according to the depth than those from soft tubes. According to Wetterer's experiments, one erythema dose with medium soft rays gives at a depth of 1 cm. 60 per cent, 2 cm. 45 per cent, 3 cm. 30 per cent; and with hard rays 75, 55, and 40 per cent respectively; moreover, in the latter case, at the depth of 4 cm. 30 per cent, and at 5 cm. 25 per cent were found to be still present. The use of medium soft tubes, which up to that time prevailed, has been generally given up, although many authors (H. E. Schmidt, Berlin) since 1909 speak against the use of hard tubes and filters.

An increase in the hardness of a tube above 12 We. is practically impossible; the use of ray filters, however, affords a different way of producing the same results.

The possibility of increasing deep action in radiotherapy, made known by Perthes in 1903, by separating the soft from the hard rays with a tinfoil or aluminum filter, led to the determination, in 1904, that 1 cm. tissue or 1 cm. water absorbs the same amount of rays as 1 mm. aluminum. Leather or skin filters proved effective only with medium hard tubes. Water and air filters have never been used. Among the effective filters may be mentioned glass, tinfoil, and silver (v. Jaksch, 1909). Aluminum, particularly recommended by Walter, was first used to a large extent by Bordier and Guilleminot. According to Guilleminot's experiments, a large proportion of the unfiltered rays were absorbed in upper layers, and in deep-lying tissue very little. According to him, deep-seated tumors require therefore nearly uniform or monochromatic rays. A 5 mm. aluminum filter is sufficient for practical purposes. Prof. Barkla of King's College, London, regards ionization as the principal cause of the changes in substances subjected to X-rays: the rays work on superficial tissue more strongly than on that which lies deeper. The rays which reach the latter are penetrative and lose the largest part of their energy through dispersion, not through absorption. In order to counteract this and to increase the intensity of the acttion and to localize it, he proposed injections of a substance which contains a heavy metal. This allowed only a small percentage of the rays to penetrate, but transformed them into secondary rays which are more intensely ionizing. By injecting into the tissues finely divided bismuth carbonate he brought about thirty to forty times more ionization than in tissues which had not been so impregnated. Christen, who amplified this method, is able, theoretically, to cause the absorption of the optimum dose at a given depth.

The experiments of the authors in the technique of filters extends to (1) morocco leather, (2) satrap paper (the skin remaining free from an otherwise present erythema under the Kienböck paper, which is made of satrap), and (3) aluminum plates 3 mm. thick.

With a superficial dose of 10X from soft tubes, there was absorbed in the first centimeter without filter 8X, with leather 6.2, with satrap 5.5, aluminum 3, aluminum and leather 3.5, and aluminum and satrap 3.3; with hard tubes the corresponding figures were 4.5, 4.6, 3.8, 2, 2, 2. The use of hard unfiltered rays is thus much less dangerous than soft rays, and weak filters cannot greatly diminish the danger of burns; therefore it is necessary to use strong filters for real protection of the skin. Satrap, which as well as leather increases the filter action, is used only to avoid the secondary rays from the aluminum filter.

With the decrease in the injuries to the skin goes hand in hand an increase in the effect to be had in the depth, according to the kind of filter. Experiments upon an aluminum model showed that with an application of 10X there was absorbed at the depth of 1 cm., without filter 4.5X, with 3 mm. aluminum filter 2.2X; at a depth of 8 cm., without filter 0.2X, with 3 mm. filter 0.6X. Theoretically, one can thus give, with the filter, 20X superficially before the absorption of 4.5X takes place in the first centimeter. With this increase we should then get 1.2X at a depth of 8 cm. instead of 0.2X, i. e. six times the former dose, even without risking erythema. With soft tubes (6 to 7 We.) without filter, there was absorbed in 1 cm. 8X; the remaining 2X was reduced at a depth of 2 cm. to 1X, and at 4 cm. only 0.5X was left. The expression "dose-quotient" signifies the ratio between the quantity absorbed in the depth and the superficial dose. The greater it is, the less is the penetrative effect in the depth. In the above experiment the quotient at the depth of 4 cm. is 40, and at the depth of 8 it is ∞. With four thicknesses of chamois the dose-quotient at 4 cm. is 12.4, at 8 cm. ∞; with satrap, 11 and ∞ respectively. Aluminum filters leave at the depth of 1 cm. 7X still unabsorbed, at 2 cm. 5.5X, at 8 cm. 0.7X, a dose-quotient of 5.20. There takes place, therefore, at the same time with the considerable protection of the skin, a large increase in the penetrative dose. With the aluminum plate plus the chamois there remains after the first centimeter 6X, after the second 5.5X, and at 8 cm. 0.7X (a dose-quotient of 5.7 — about the same as with aluminum alone). Aluminum and satrap allows at 1 cm. 6.8X, at 2 cm. 6X, at 8 cm. 1.2X, i. e., a decrease in the penetrative action; the dose-quotient 6.4. With soft rays a weak filter increases

but little the penetrative effect; strong filters increase it considerably.

Unfiltered rays from hard tubes give at the depth of 1 cm. 5.5X, at 2 cm. 4.5X, and at 8 cm. 0.7X. The superficial absorption is thus considerably less than with unfiltered rays from soft tubes, but still greater than when the soft rays have passed through a strong filter (dose-quotient, 22.5); with similar dosage in the depth, the unfiltered hard rays allow less protection of the skin and more superficial absorption than the strongly filtered soft rays, yet they are better than the unfiltered soft rays. With chamois filters, at 1 cm. we get 5.4X, at 2 cm. 4.3X, and at 8 cm. 0.8X, a dose-quotient of 23. As one will see, this filter has little effect. With satrap filters, at 1 cm. 6X, at 2 cm. 5X, at 8 cm. 1.3X, a dose-quotient of 19, which is somewhat better.

With the aluminum filter, at 1 cm. we get 7.8X, at 2 cm. 6.5X, and at 8 cm. 1.2X, a dose-quotient of 3.7. This represents a tremendous increase in the penetrative action, with a great protection of the skin. The addition of chamois skin gives respectively 8X, 6X, 1.7X, a dose-quotient of 3.3, an improvement upon the preceding. Aluminum with satrap gives 8X, 6X, 1.8X, a dose-quotient of 2.1, which is even better.

Aluminum was chosen because comparative experiments with tinfoil and glass showed plainly its superority (silver is not to be considered because of the soft secondary rays which it gives off). Tinfoil is not at all sufficient for a depth of 8 cm.; the dose-quotients of aluminum and glass are in the ratio 4:3.

As far as the time is concerned which one needs to produce a superficial dose of 10X, soft and hard tubes, without filter, require 200 and 155 seconds respectively, with leather filters 240 and 175 seconds, with satrap 1260 and 250 seconds, with aluminum 1800 and 350, with aluminum and leather 1860 and 345 seconds, with aluminum and satrap 2190 and 350. The stronger and more effective the filter, the more time is necessary. Hard rays with and without filter give the desired superficial dose more quickly. Hard tubes are thus to be preferred. The optimum thickness of the filter was also determined by means of the aluminum model. A hard tube 10 We. was run at 4.5 to 5 milliamperes at a distance of 20 cm. from the model. In the supposition that injuries to the skin are brought about by absorption in the upper cms. of the body, that kind of ray is the best which is least absorbed in the upper layers. With an aluminum plate of 0.5 mm. 3.8X were absorbed, with 1 mm. 3.6X, 1.5 mm. 3X, 2 mm. 2.6X, 3 mm. 2X, 4 mm. 2X, 5 mm. 3X, 6 mm. 2.8X, 8 mm. 3.5X, and 10 mm. 3.6X. Using hard rays, there was absorbed in the first cm., without filter 4.5X, with chamois 4.6X, with satrap 3.8X, with 3 mm. aluminum filter 4.5X. This means that 0.5 mm. aluminum protects a little, 1 mm. not much more, up to 2 mm. a little increase, 3 and 4 mm. show, however, decided skin protective quality, which decreases again with the stronger filters. With a skin thickness of 4 mm., under which a further injury to the skin is not to be expected, there is absorbed with a superficial dose of 10X, without filter 2X, with satrap 2X, 0.5 mm. aluminum 2X, 1 mm. aluminum 2X, leather 2X, 1.5 mm. aluminum 1.4X, 2mm. aluminum 0.5X, 3 mm. aluminum 0.5X, 4 mm. aluminum 1X, 5 mm. aluminum 1X, 6 mm. aluminum 1.5X, 8mm. aluminum 1.5X, 10 mm. aluminum 2.5X. The best protection to the skin accordingly is between 2 and 5 mm. aluminum.

The penetrative action is influenced by filters in the following manner: With 1.5 mm. filter at a depth of 8 cm. the dose-quotient is 11.3, with 1 mm. 18, with 1.5 mm. 15, with 3 mm. 6.6, 4 mm. 5, 5 mm. 5, 6 mm. 5.6, 8 mm. 7, and 10 mm. 7.2. The dose at this depth increases with 0.5 up to 3 mm. from 1X to 1.5X, with a 3 mm. filter up to a 10 mm. filter it remains 1.5X. However, one requires with a 3 mm. filter to obtain 10X, 360 seconds, and the time required increases with the thickness of the filter till at 10 mm. 900 seconds are required. A filtering of the rays with a 3 to 4 aluminum filter costs least in time and money.

Werner found that the action of the X-rays is in many ways to be regarded as an influence on the chemistry of the body cells. In spite of this fact the chief point of attack in X-ray therapy will probably remain the ovaries, though their location is often variable or unknown. It therefore seems necessary to obtain the largest possible absorption of ray units at several different depths. Experiments have been carried out on an elaborate recording apparatus with rhythmical interruption and a rotating aluminum filter which consisted of segments of different thicknesses, making 200 to 250 revolutions a minute. In comparison with experiments made with fixed filters, it was shown that the rotating filter is better adapted to reach all layers of tissue than is the fixed filter, and therefore, the depth of 2 to 8 cm. The best partition of the rotating filter is made with segments of 3, 5, 8, and 10 mm. thickness; the skin is also better protected, for only 0.8X is absorbed in the first em.

Plant experiments were undertaken, as well as those with animals, to put to the test the difference in action of filtered and primary rays. Young bean plants (Vicia faba L.) proved in preliminary experiments to be very sensitive to X-rays. A series of experiments showed that the plants were much more damaged by filtered than by unfiltered rays, the degree of damage increasing with the thickness of the filter. Less damage was done to plants rayed without filter. Experiments on tadpoles showed that they were sufficiently sensitive. A definite dose of unfiltered rays which did not kill them proved when filtered to be deadly. Animals of the same origin and size being used, a strong filter (5 mm.) proved to give a relatively low lethal dose. With white mice the optimum filter thickness seemed to be between 3 and 10 mm. From all these experiments it seems necessary therefore to use only hard rays if one wants good results in the penetrative therapy.

In order to bring about the desired biological effect, an increase in the quanity as well as the quality of rays must be made. The limitation on the application of the X-ray caused by erythema led Levy-Dorn in 1904 to the choice of several points of entrance, thereby hoping to bring about a summation of the penetrative action with protection to the skin.

The secondary rays which were described by Röntgen in 1897, and which he explained as a charging of the neighboring air, were also subjected to experiment. A repetition of his interesting work confirmed completely his observations. This was particularly noticeable when a stronger filter (zinc) was used to increase the light, and thereby the secondary ray, absorption, instead of the air filter referred to by Röntgen. Experiments with tadpoles in a weak collargol solution (1:2500, on account of the intense secondary rays of the silver) showed that the action of both kinds of rays is increased both within and without the body by the choice of an appropriate ray transformer (silver).

In order to make the secondary rays applicable to patients, a model was made to simulate the body, on which experiments were carried out. Two tallow plates 3.5 cm. thick were used. Above and below each was placed a Kienböck slip, and the whole was rayed under a 3 mm. aluminum filter from a distance of 3.5 cm.: the difference between the colors of the two lower Kienböck slips was no greater than in corresponding experiments carried out on a model surrounded with lead. The secondary rays given off by the lead seem to have been absorbed by the tallow plates which correspond to flesh and blood. Experiments with collargol on human beings are not yet completed.

The increase in the ray dose by means of bringing the tube closer to the patient is limited by the erythema. If we reckon the intensity at 100 when the cathode is 10 cm. distant, the intensity at 15 cm. will be 44.44, at 20 cm. 25, at 25 cm. 16, at 30 cm. 11. In spite of this, the misproportion between the superficial and penetrating dose is so great as to forbid bringing the tube too near. The ideal focus-skin distance, according to Wetterer-Dessauer, is infinity; for practical purposes, a minimum of 1 M., which, however, with hard tubes would consume a tremendous amount of time. Albers-Schönbergs struck upon a compromise at 38 cm., taking into account that the greatest difference in intensity occurs between 10 and 30 cm. (Perthes). The unfavorable results with this method led to a spacing off of the area treated into several fields. A much more effective means of increasing the penetrative action is to combine the use of filters with the increase of the points of attack.

Werner regarded application of the necessary therapeutic dose within a short period of time not only as possible but as very important. This intensive therapy is amply justified by the failures made by all methods which do not use this principle. Too small a dose brings about undesirable stimulating effects, and has also the drawback of giving many more recurrences.

The great difference in the kind of rays used in diagnosis and in therapy makes necessary a radical alteration in the apparatus itself. Diagnosis requires complex rays; therapy, homogeneous. Instead of a spark transformer, a spark inductor is used to transform currents from low to high tension Continuous action of the apparatus is made possible by a specially constructed regulator, which allows the tubes to regenerate, an appreciable pause being made after each induction contact in a flickering manner. The gases in the tubes are thus able to maintain a constant resistance to the "closing current." In order to give the focus point on the cathode time to cool off one brings into use, in addition to the mechanical "record" interrupter, a rhythmical interrupter which is placed in the primary current, and which can be regulated with long or short pauses according to the condition of the tube used. The tubes of Müller model, "penetrans," allow of a decrease in the focus-skin distance by special construction, the cathode being placed near the under surface of the tube, though the vacuum conditions are maintained. The four oldest tubes which are used in the Freiburg clinic and which are still usable show an average use of 89 "light hours" under a regular employment of 5–12 milliamperes.

Whereas formerly 25 minutes were required to get 10X with 3 mm. aluminum filter, focus distance 20 cm. and secondary current of 3 milliamperes, with the use of the rhythmical interruption and 5 milliamperes current only 7 minutes are necessary, and with 10 to 12 milliamperes 2 to 3 minutes. In spite of giving up the five-minute change in tubes formerly made, and the increased secondary current, damage to the tubes occurs now less often than formerly. The loss of rays which was feared by many did not occur; on the contrary, the penetrative effect is somewhat increased.

Concerning the action upon the skin, there occurred with the technique of Albers-Schönbergs, i.e. 38 cm. focus-skin distance and 2 to 4 layers of leather filter, injuries to the skin in 15.5 per cent of the cases. Using the intensive therapy with a focus-skin distance of 20 cm., the erythema dose of 10X could be increased even up to 40X before injury to the skin took place.

The end result itself, with the intensive therapy, appeared oftener and more quickly than before and was more often lasting; i.e., among the 102 patients which in the last year and a half received this treatment there is not a single failure. The time consumed with the old method without filter averaged five treatments in eleven weeks (with aluminum filter, 3 sittings in six weeks). Shrinkage of the myoma itself, much doubted by many, took place without the slighest doubt, and was so obvious that not only the physician but the patient herself could notice it. Of 36 myomata examined nine months after treatment, 20 had entirely disappeared. The

general feelings of the patient suffer little during the intensive therapy. One can hardly speak of an inordinate demand on her strength; many patients read, others often enough go to sleep during the treatment. The so-called "Röntgenkater" (Katzenjammer) consists of headache, backache and nausea, and has certain resemblances to the symptoms of dysmenorrhœa. It lasts at most from one to four days. According to Krinski's observations, it occurs most often when the dose given approaches 400X; if this dose is much increased in the first sitting, the Röntgenkater does not occur. At any rate, it is not to be considered comparable to the unpleasant symptoms attending operation.

The symptoms of the menopause (flushes, sweating, dizziness, palpitation, etc.), which indicate to a physician the approach of a cure, occur less often and are less persistent than in cases treated by operation.

The chief advantage of the intensive therapy is a smooth convalescence; two to three weeks after the first series the curative action is plainly to be seen, an observation which is made alike by patients and their family physicians.

To increase the effect of X-rays, hyperæmia and painting with eosin have been recommended: both methods are, however, too little developed. In order to desensitize healthy tissue, which must of necessity be rayed along with the other, the use of compression and cold has been advised, as also the exact demarcation of the skin areas subjected to treatment. Injections of adrenalin appear to be applicable only to fairly superficial tissue; up to the present time there can be little said of the anæmia produced by high frequency currents and the wire net method of Alban Köhlers. The use of radioactive substances in connection with X-rays in cases of myoma and menorrhagia seems to have a future worth considering, although a discussion of it here is out of place.

Lecethin is changed in the tissues by the X-rays into cholin, and as such is capable, when injected, of bringing about similar changes (chemical imitation of X-ray effects). Röntgen rays and radium form in the tissues, therefore, definite substances which bring about specific cell changes. The thought was not out of place that one can influence one part of the body by raying another part (indirect raying, or Fernbestrahlung). The experiments on this subject, which are not without contradiction, are as yet unfinished.

The practical application of the penetrative therapy accomplished only occasional results in the early days when the general principles of radiology were less known. A practical method was possible only after the pioneer experiments of Perthes. Dessauer tried, by placing the tubes at a great distance, to bring about as homogeneous a raying as possible (räumliche Homogenität). The soft rays which were also present in spite of the use of hard tubes, he tried to exclude by means of a glass filter (spezifische Homogenität). His method demanded 500 light seconds for the application of 10X. Albers-Schönbergs was the first to bring forward a theoretically good and practically useful method. He used tubes of 6 to 8 We. at a distance of 38 cm. with 2 to 3 milliamperes. The total length of each series was not to be over 18 minutes, and the highest dose on each area of skin 6 to 7.5X. He has recently given up his original one-field method. The use of many areas of application, which was recommended by Levy-Dorn, was systematically bettered by Werner. Fränkel constructed a special plate to fit the abdomen, in order to exactly localize the areas and to make use of the crossfire.

The Freiburg clinic has long made use of the crossfire principle. The tube, instead of being placed over the symphysis (Albers-Schönbergs), is placed on the right and left sides of the abdomen at an appropriate oblique angle. As further places of application the vagina and vulva were used, as also was the foramen ischiadicum, before which the ovaries often lie. Rays are also applied to the back. A further use is made of an increase in areas rayed. The skin of the abdomen is divided into fields according to the size of the object to be treated; thereby not only are the ovaries affected, but the tumor itself, changes in which have recently been shown by Robert Mayer, and the secondary rays from it act also on the ovaries. In cases of metropathia hæmorrhagica, a star-shaped arrangement of the fields is used, whose center corresponds to the fundus uteri.

The features which characterize the Freiburg technique in contrast to others are, the giving up of the "räumliche Homogenität" and the substitution of a quantitative and qualitative increase in the specific Homogenität.) It consists in filtering with 3 mm. aluminum, a reduction of the focus-skin distance to 20 cm. and a crossfire by means of as many points of entrance as possible. It is quite different from the methods without filter or with weak filter, and is absolutely different from methods without the crossfire and small focus-skin distance which carry with them the danger of stimulant action and decrease the chances of a sure and lasting result.

The oldest method used in Freiburg (since 1906) employed medium soft tubes and a focus distance of 15 cm. A rubber air bag was used in the vagina to bring the uterus and ovaries nearer the surface and so decrease the ray dispersion. The secondary current was 2 to 3 milliamperes, and the sitting at first of 5 minutes; if no skin injuries appeared after 8 days, the patient received for one week 2 light-minutes every third day. The results were never satisfactory.

The technique of Albers-Schönbergs was hence gladly tried. Patients were rayed on the abdomen, at first on one, later on several fields, on 3 or 4 consecutive days, each time receiving 6 minutes, at 3 to 5 milliamperes, tubes 6 to 8 We., focus-skin distance 38 cm., and the time between series was 14 days. To protect the skin four layers of chamois were used, at times covered with tinfoil; the other

parts of the body were protected by the diaphragm and tube case. In 50 per cent of the cases amenorrhœa was obtained, which showed a great advance in the technique. Results appeared in about 3 months with the use of 55 light-minutes. In the other 50 per cent only oligomenorrhœa was produced. Under a continuance of the Albers-Schönbergs method, to which three fields were added, amenorrhœa was obtained in 71 per cent, in 5 per cent oligmenorrhœa, 2.5 per cent had relapses, 2.5 per cent were failures, and 19 per cent withdrew from observation. Amenorrhœa required 11 weeks, and an average of 189 light-minutes were used.

As the withdrawal of the patients was probably caused by the length of the treatment, and in consideration of the three relapses, the number of fields was increased to seven. The length of treatment in the seven-field method was about 3 months, somewhat longer, as patients that did not respond to the former treatment were included. The percentage of cures rose from 71 per cent to 76 per cent, 5 per cent oligomenorrhœa, 5 per cent relapses, and 14 withdrawals from treatment. The average actual time of treatment was 447 minutes. In spite of the important advance which the Albers-Schönbergs method brought, a cure of 71 to 76 per cent is not satisfactory. Since the upper limits of the superficial dose had nearly been reached, it became a question of better protection of the skin and better penetrating action, together with a shortening of the time of treatment. To this end the short-focus filter method, which was shown experimentally to be so effective, was used. With an average dose of 286X, amenorrhœa appeared on an average after 14 weeks, here also being included cases which were refractory to the older method. The following results were obtained on those cases which were handled entirely by the new method, the object in mind being a reduction of the number of series and of the length of treatment by increasing the penetrative dose. With an average of 909X no refractory cases were encountered, and the time was reduced to 9 weeks.

The improvement in the apparatus which had taken place during this time allowed the application of a greater dose in a given time, hence an increase in the size of the series required no corresponding increase in time; the treatment was shortened to 5 weeks, an average of 1480X was given, and the cures were 100 per cent.

The Röntgen therapy, formerly primitive, now built up in detail, is placed in competition with the operative treatment in cases of myoma and metropathy. Patients whose strength has been much reduced by repeated and continuous hæmorrhage are especially adapted to this treatment, and it is through treatment of just such cases that the mortality of the myoma operation is to be greatly reduced. As far as the length of treatment is concerned, the operative treatment demands 6 to 7 weeks for the restoration of the ability to work; the Röntgen treatment requires 8 weeks with the use of filters, short-focus and many fields; with intensive therapy, 5 weeks, and at the same time the patient is never rendered absolutely unable to work. A further shortening of the treatment by using only one series is being tried; up to the present, cure has been brought about in a large number of cases.

Symptoms of the menopause were, of course, observed, though they were much weaker than after castration, and even after removal of the uterus alone. As accompanying manifestations, burns were observed, at first rather often; later, however, with improvement in the technique, burns of a serious nature have not occurred; even with Titian-blond patients, there was never a second degree burn. Late reactions, such as appear in the literature, are believed to be due to the use of too weak filters; at least the reported late reactions have great resemblance to those caused by soft rays. With strongly filtered rays no reactions have been noted over a period of 9 months. Since such lasting damage has not been seen after 4 years, the clinic thinks itself justified in continuing the treatment along the lines mentioned. The X-ray cancer, which still stands foremost in the physician's mind, is, as every radiologist knows, a result of chronic dermatitis alone, which has been caused by using X-rays year in and year out; for the patient it belongs to the realm of mythology.

A control of the cases treated up to 9 months ago shows that of 55, 54 are cured; the one failure belongs to the Albers-Schönbergs method. Of the 54 cases there were 45 amenorrhœa and 9 oligomenorrhœa; whereas with the Albers-Schönbergs method amenorrhœa was never obtained by women under 30 years; this was accomplished in 2 cases with the intensive therapy and in a space of time impossible by any other method. This cure of 97.2 per cent is obtained by differing methods, while the 24 cases with filter and short focus gave a cure of 100 per cent.

Greater demands are made on the better perfected treatment than on the old method with its cures of 50 per cent. Sarcoma and carcinoma cases must be excluded. The danger of inadvertently treating a malignant tumor is, however, small, for Olshausen reported among 6470 myoma 77, or 1.2 per cent, sarcomatous degeneration. Among 318 operated cases in the Freiburg clinic, Aschoff could find but 6, or 2 per cent, sarcomata. All uterus tumors which appear suspicious were subjected to a curettage, and were rayed if no malignant condition was found.

According to Krönig one should not use the X-ray therapy in cases where the tumor hangs by a pedicle, in those in the cervix lumen, in those suspected of being gangrenous, in those in combination with carcinoma, and in those where, through rapid growth, a metrorrhagia type of bleeding, or unsuccessful X-ray treatment, one has suspicions of sarcomatous degeneration; further, in cases which cause acute incarceration of the bladder. In all other cases radiotherapy is the method of choice.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Bacon: Pulmonary Tuberculosis as an Obstetric Complication. *J. Am. M. Ass.*, 1912, lix, 2197. By Surg., Gynec. & Obst.

Bacon says that every year there are in the United States between 22,000 and 44,000 gravidæ with active tuberculosis. The effect of tuberculosis on the course of pregnancy is slight. The effect of pregnancy on the course of tuberculosis is dependent on many factors; however, if the patient gets through the first three months there is often an improvement in her condition, especially when the disease is in its early stages. In the puerperium tuberculosis usually becomes worse even in milder cases. Prophylaxis involves: (1) prevention of pregnancy in a tuberculous woman and (2) prevention of infection in a pregnant woman or in one liable to become pregnant, the danger here arising chiefly from a tuberculous husband. He discusses artificial sterilization, permanent and temporary, and interruption of pregnancy with methods of producing abortion.

The care of the mother and the protection of the child demand professional, philanthropic and state co-operation. L. G. Dwan.

Barchet: Pregnancy in a Diverticulum of the Uterus (Gravidität in einem Uterusdivertikel). *Monatschr. f. Geburtsh. u. Gynäk.*, 1912, xxxvi, No. 6. By Surg., Gynec. & Obst.

This is the sixth known case of ectopic pregnancy in a diverticulum of the uterus. The patient was 39 years old. She had borne one child and had had 4 miscarriages in the fifth month. She had menstruated regularly up to 3 months before the atypical symptoms developed. While going to bed one night she suddenly was seized with cramps, nausea and vomiting. Upon examination the vaginal mucosa was blue-red, the portio stood in front of the spinal line and went over into a tumor the size of a fist. The adnexa were not palpable. The diagnosis was retroflexed, gravid uterus. It was brought up and held in place by a pessary.

Two months later the patient returned and stated that she had been bleeding intermittently during all that time. By vaginal examination the uterus was found to be the same size as two months before, but a bulging at the right side was plainly palpable. Dilation and subsequent digital examination showed the cavum uteri to be empty but an appending tumor the size of a fist was palpable. With a curved sound its communication with the cavum uteri was easily made out. The diagnosis was changed to pregnancy in a rudimentary horn or in a tube, and only the operation revealed the true nature of the case. The tumor was excised and the incision in the uterus sutured. The right tube was not connected with the tumor. The sac was covered with peritoneum. The fœtus was macerated, the umbilicus and placenta were still present. The wall of the sac showed uterine structure.

L. W. Sauer.

Maxwell: Case of Puerperal Eclampsia Treated by Cæsarean Section. *Proc. Roy. Soc. M.*, 1912, vi, 43. By Surg., Gynec. & Obst.

Maxwell reports a case of eclampsia in a primagravida, aged 19, whom he delivered by Cæsarean section as she failed to respond to medical treatment. She had thirteen fits in ten hours and was unconscious after having the ninth. The operation was performed to end what was believed to be a placental toxæmia, and was carried out solely in the mother's interests. That the child was saved was regarded as a fortunate and rare coincidence. The operation would have been carried out even had the child been dead. He emphasizes the fact that chloroform should not be used in these cases. Before closing the abdomen two pints of normal saline solution with 10 per cent of glucose were poured into the belly.

No subsequent fits took place, and the mother made an uninterrupted apyreal recovery. A considerable drop in the patient's blood pressure set in after delivery, from 165 mm. hg. to 135 mm. Albumin, which had never been present in more than a faint cloud, disappeared entirely by the third day.

The indications which he would formulate for Cæsarean section in these circumstances are: (1) Fits occurring in a primagravida. (2) Onset of fits with no sign of the start of labor. (3) A rapid succession of fits, where consciousness is not regained and coma is deepening. (4) Failure of advance of cervical dilatation after several hours of an expectant attitude, with the prospect of many hours' delay before the second stage of labor is reached. (5) Absence of any definite signs of improvement after several hours "eliminative" treatment has been carried out.

He thinks the operation is justifiable in the presence of all five, otherwise there is not a definite indication for Cæsarean section.

Blacker, in the discussion, called attention to the fact that sedatives had not been used to control the fits. In his opinion it is impossible by any operative treatment to improve on the results by the expectant treatment which was employed by Stroganoff in 360 cases with a maternal mortality of only 6.6 per cent, and by Tweedy in 66 cases with a mortality of 9 per cent; while Roth has

recently published 31 cases treated in Dresden by Stroganoff's method with only one maternal death. He did not think Cæsarean section justifiable except in rare cases in which it was necessitated on other grounds, owing to the high mortality, and refers to the recent paper of J. F. Moran in which 116 cases of Cæsarean section are reviewed with a maternal mortality of 48.9 per cent and a fœtal mortality of 39 per cent. He collected 53 cases of Cæsarean section performed during the years 1901 to 1911 for eclampsia, with a maternal mortality of 32.3 per cent and a fœtal mortality of 19.9 per cent.

C. H. Davis.

Wallace: The Suppression of the Convulsion in Eclampsia. *Lancet*, Lond., 1912, clxxxiii, 1574. By Surg., Gynec. & Obst.

The author refers to the most successful methods of controlling the convulsions: (1) The *chloroform, chloral*, and *morphia treatment* of Stroganoff, of St. Petersburg, whose reported results are truly astonishing. No doubt the drugs named have an influence in the treatment, but it should be pointed out that each patient is treated under conditions infinitely more favorable than have ever before been made use of, for she is placed at once in a totally darkened room that is isolated from all possibility of disturbance by external influences. His statistics of over 400 cases yield a maternal mortality of 6.6 per cent, as compared with the usual 20 to 30 per cent; and a fœtal mortality of 21.6 per cent, as compared with 30 to 50 per cent. (2) *The use of hirudin.* Engelmann publishes the results of intravenous injection of hirudin in 14 cases. Of the 14 cases, 8 died. In 2 out of the 14 the preparation seemed to exercise no influence, but of the remainder the convulsions ceased immediately in 4 cases, after one further attack in 3, after two in 1, and after three or four in 1. (3) The author advocates the use of intrathecal injections of solutions of magnesium sulphate. Care in administration is needed, for too large a dose may lead to a fatal termination by causing paralysis of the respiratory center. A twenty-five per cent solution of magnesium sulphate should be employed after sterilization and the dose regulated by the body-weight of the individual patient, 1 cc. being allowed for every 25 pounds of body-weight. He reports two cases only, the first recovering after one injection, the second after two.

Donald C. Balfour.

Lichtenstein: Expectant Treatment of Eclampsia (Die abwartende Eklampsiebehandlung). *Arch. f. Gynäk.*, 1912, xcviii, No. 3. By Surg., Gynec. & Obst.

The statistics of the author's 45 cases and of 193 collected cases from German institutions show excellent results. The author divides his cases into three groups:

1. Sixteen cases of intercurrent eclampsia in which delivery occurred at least 12 hours after the last attack.

2. Twenty-four cases in which delivery occurred within 12 hours after the last attack.

3. Five cases of puerperium eclampsia.

The bulk of the article deals with the clinical history of each of the 45 cases. Summary thereof: 34 primipara; 11 multipara.

Stage of pregnancy when the eclampsia began: Tenth month, 31 cases; ninth month, 5 cases; eighth month, 6 cases; second, sixth and seventh months, 1 case each; puerperium in 5 cases.

Nature of the delivery: spontaneous, 24; operated, 21 (of these 4 were mothers of twins).

Prodromal symptoms occurred as follows: Œdema in 37 cases; headache in 27; optic disturbance in 4; vomiting in 11 cases, and 34 cases were unconscious when taken into the hospital. All 45 cases had albuminuria (highest 40 pro mille). Mortality of the children living at birth 37 (of which 8 died later). Dead at birth, 12. Of 36 viable children, 9 died.

Excluding the one case in which venesection was not made, we have of 44 cases, cessation of all symptoms and attacks in 26 cases, which is 59 per cent. The first venesection is the most important, about 500 cc. of blood being drawn. In only a few cases was a second or third blood-letting necessary.

The maternal death rate was 11.11 per cent, 5 women dying. Three of the deaths were due to other causes. Two severe cases of methæmoglobinæmia were cured by venesection and Stroganoff's narcosis.

In summing up his article, the author strongly advocates that the results from his cases have proven the worth of the expectant treatment by his method of venesection and Stroganoff's narcosis. He urges the removal of 500 cc. of blood at the first venesection. As the result of this procedure he claims that many deliveries occur spontaneously; that toxicity of the blood, as well as the blood, is decreased; the number of attacks is reduced; that in 60 per cent of the cases no attack occurs after treatment; that the mortality of the children is lower and that the maternal mortality is reduced to 11 per cent. He also urges that the urine be examined several times daily by the Esbach method.

Since the compilation of the statistics, the author had 35 additional cases of eclampsia without a death. This brings his cases to 80 with 5 deaths or 6.25 per cent. During 12 months he had 60 cases and no death.

L. W. Sauer.

Schwarz: Mechanism and Treatment of Placenta Prævia. *Am. J. Obst.*, N. Y., 1912, lxvi, 974. By Surg., Gynec. & Obst.

Schwarz believes that no form of placenta prævia as such ever offers a justifiable indication for Cæsarean section and that Braxton-Hicks version in the presence of a viable child should be discontinued because of the fœtal mortality. He considers it the ideal treatment to tampon the cervix and vagina until a bag can be introduced, but advocates that the bag be introduced below the ovum instead of within the amniotic cavity.

N. S. Heaney.

Davis: Cæsarean Section: Technique of the Operation by the Small Median Incision Above the Umbilicus; with a Summary of Cases. *Am. J. Obst.*, N. Y., 1912, lxvi, Dec. By Surg., Gynec. & Obst.

In this article Davis reports a new series of 69 cases with a maternal mortality of 4 or 5.79 per cent of cases. Among the 70 children resulting, 5 were stillborn and 3 died before leaving the hospital, or a mortality of 11.43 per cent. Two of the mothers died of eclampsia the day following operation, one died of infection who had placenta prævia centralis and a dead baby on admission, and one, who had a flattened pelvis and a 12-pound baby, died of infection. A forceps attempt had been made previous to admission; the baby was dead upon arrival at the hospital. Sterilization was done but rarely, twice in 147 cases. Twenty-six times the operation was performed upon patients who had had one or more sections (one had had 5) among these three mothers died and all the children survived. Davis advocates a small incision made above the umbilicus and a small parallel incision of the fundus through which the fœtus has to be emptied without attempting to bring it outside the abdomen, and no attempt is made to remove either blood or amniotic fluid which has found its way into the abdomen. In one case a small rupture occurred of a previous section in the scar.

N. S. Heaney.

Peterson: The Indications for Abdominal Cæsarean Section. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In Peterson's paper, he stated that the more common indications for this operation were obstructions to labor, pelvic contractions, fibromyomata, ovarian tumors, stenosis of the cervix and vagina, and miscellaneous, such as previous ventrofixations and the large size of the child. Other indications were uterine hæmorrhages, concealed accidental hæmorrhage, placenta prævia, constitutional crises, eclampsia, and contracted pelvis. Probably more Cæsarean sections would be performed for this indication than for any other. The operation was imperatively demanded in cases where the conjugata vera measured 7.5 cm. or less, and the child was living. When the child was dead and the true conjugate was 6.2 cm. or under, Cæsarean section was still indicated, on account of the danger to the mother of attempts to deliver the craniotomized child through such a small pelvic diameter.

He was at present engaged in tabulating the results of 425 cases of eclampsia treated by abdominal Cæsarean section, and some very interesting facts were being brought out. Not only had the literature been carefully searched and all recorded cases been collected, but many operators all over the world had been kind enough to furnish him with unpublished cases. Thus the statistics represented not the work of a few, but over 200 operators.

The total maternal mortality, counting patients operated upon before the aseptic era, was 36.9 per cent, while this was reduced to 31.8 per cent if only the 317 patients operated upon since 1900 were counted. The 50 per cent mortality ascribed to abdominal Cæsarean section in the treatment of eclampsia could be explained by errors in the selection of cases, for many eclamptic patients were subjected to the operation who were hopelessly septic. These patients did not die from the eclampsia or the operation itself. Many of them perished because of the poor judgment on the part of the operators. They would have died even if the operations had not been performed for eclampsia.

In 245 cases of eclampsia, where there was no sepsis or very little chance of it prior to the abdominal Cæsarean section, the maternal mortality was only 24 per cent. It was significant that in 50 cases where operative procedures preceded the Cæsarean sections the maternal mortality was 48 per cent, the difference in mortality being due not to the eclampsia but to the sepsis accompanying the eclampsia, a condition which could be avoided once this relation of sepsis to Cæsarean section was fully realized by the profession.

The results of abdominal Cæsarean section for eclampsia, so far as the fœtus was concerned, should be, and as a matter of fact were, gratifying in the 425 cases. In 217 cases since 1900, where the fœtal statistics could be studied, the fœtal mortality was only 5.5 per cent. Even this mortality was reduced to 3.7 per cent in 132 cases where the sections were performed after from one to five eclamptic convulsions.

These statistics were quoted to show that the last word had not been said regarding the place of abdominal Cæsarean section in eclampsia. At least, the statistics in over 400 cases had shown beyond a doubt that no one was justified in dismissing the treatment of eclampsia by abdominal Cæsarean section with a short statement that the mortality was so high as to make it an unjustifiable operation.

E. S. Talbot, Jr.

Roberts: Cæsarean Section for Prolapse of Cord in Contracted Pelvis. *Proc. Roy. Soc. M.*, 1912, vi, 56. By Surg., Gynec. & Obst.

Patient was sent to the hospital with the cord hanging out of the vagina but pulsating. Examination showed that the head was not engaged and that the pelvis was contracted, the conjugate diagonalis being 3¾ in. The cervix was only half dilated. After washing the cord with lysol an attempt was made to replace it with patient in the knee-chest position. As the pulsations were getting slower a Cæsarean section was performed. The child was saved and while the patient ran some temperature she made a good recovery.

President Routh suggested that the tardy and septic convalescence would probably have been averted if the Cæsarean section had been followed by subtotal hysterectomy. And that it was a question whether, even apart from pelvic contraction, it would not be justifiable to perform Cæsarean

in a "clean" case, if the cord was prolapsed, the child alive, and the genital passages undilated.

C. H. Davis.

Ziegler: Acute Dilatation of the Stomach; Report of a Case Following Cæsarean Section. *Am. J. Obst.*, N. Y., 1912, lxvi, Dec.
By Surg., Gynec. & Obst.

Ziegler reports in detail a case of acute dilatation of the stomach occurring after Cæsarean section. The subject was a young negress with a generally contracted flat rachitic pelvis with a diagonal conjugate of 10 cm. who was submitted to section after 8 hours of labor during which there had been but one vaginal examination and that showed complete dilatation just before the section was performed. The patient had eaten a hearty breakfast at the beginning of labor. Ether was then given. Uterus was delivered before incising it. The operation was prolonged by severe asphyxia of the child. The patient immediately after operation seemed in good condition. Eight hours after the operation her pulse and temperature began to rise and distention of the abdomen appeared until 24 hours after, when the pulse was 140, temperature 103° F. Bronchitis also manifested itself. Shortly after this, large quantities of gas and foul fluid were expelled through a stomach tube. Aspiration of stomach was performed. Every 2 to 3 hours during the next 15 days and at longer intervals for another week saline and nutritives were administered freely by the bowel and the foot of the bed was elevated. Temperature and pulse returned to normal on the seventeenth day and patient eventually recovered.

N. S. Heaney.

Davis: Acute Dilatation of Stomach Following Cæsarean Section. *Am. J. Obst.*, N. Y., 1912, lxvi, 925.
By Surg., Gynec. & Obst.

Davis reports a death 30 minutes after Cæsarean section performed because of deformed pelvis. The patient had been in labor 6 or 8 hours, had an unskillful anæsthesia of changing ether and chloroform, and had had some pressure directed to the duodenal region by the fœtal head, to which factors Davis attributes the occurrence of the dilatation, which became visible towards end of operation as a big, bulging, distended organ presenting in wound. Attempts to empty the stomach during operation by stomach tube were unsuccessful and the patient died within 30 minutes of closure of abdomen.

N. S. Heaney.

Bandler: Some Observations on Ectopic Gestation; with Report of Earliest Recorded Tubal Ovum. *Am. J. Obst.*, N. Y., 1912, lxvi, Dec.
By Surg., Gynec. & Obst.

Bandler urges in cases where the history is quite suggestive, yet the findings do not aid in the diagnosis of ectopic pregnancy, in view of the great risk the patient runs in case an ectopic pregnancy should be present and should rupture at a disadvantageous time, and especially since many cases of ectopic pregnancy exist and come to rupture where previously there has been but some suggestive symptoms and no pelvic findings, that a colpotomy be made for diagnostic purposes. As a routine he prefers this to the long drawn out period of observation. Since often the diagnosis lies between incomplete abortion and ectopic pregnancy a gentle curettement may be performed, and in case this does not clarify the case it is but a slight affair to open the peritoneum vaginally. In case that an ectopic pregnancy is present the operation may then be completed vaginally or abdominally as the conditions indicate or the operator chooses. In Bandler's earliest tubal ovum he operated because of symptoms suggestive of ectopic pregnancy and found a hæmorrhagic ovary three times the normal size and a bluish but otherwise apparently normal tube. Thinking that he was probably dealing with an ovarian pregnancy, he at first removed the ovary and distal portion of the tube leaving behind the normal appearing isthmical portion of the tube. For better study of pathology he on second thought removed the remaining portion of the tube in which the pathologist later found a small nodule the size of a pea which proved to be the ectopic pregnancy, the ovary presenting but an altered corpus luteum. The tube at the seat of the wound measured 5.5 x 5 mm., while the ovum did not occupy the entire lumen, being but 3.75 x 3.5 x 2 mm. The ovum had not reached the stage of embryo formation. It was represented by several large masses and streaks of trophoderm which lay near the trophoblast. There was no true chorion formation. Leucocytes were limited to the loose muscular fibers at the base of the ovum and hence were probably not due to inflammatory reaction. A muscle septum separated that part of the lumen of the tube holding the ovum from the canal leading to the uterine cavity and was held by Bandler as the causative factor in the origin of the tubal implantation of the ovum.

N. S. Heaney.

Boquel: Extrauterine Pregnancy Operated in Labor at Full Term with Living Child (Grossesse extra-utérine opérée à terme au cours du travail avec enfant vivant). *Arch. mens. d'Obst. e. d. Gynéc.*, 1912, i, 277.
By Journal de Chirurgie.

The patient was a woman of 26 years, who had complained of attacks of violent pain during pregnancy. The diagnosis at first was obscure, and appendicitis, tubal torsion, and a renal affection were considered, as well as ectopic gestation. A definite decision in favor of the latter was only arrived at in the seventh month, when the superficiality of the fœtal part was decisive. The fœtal mass was so closely connected with the uterus that it was indistinguishable from the latter and no certain conclusion could be arrived at as to whether the pregnancy was extrauterine or intramural. Intervention was postponed in order to allow the child to come closer to term. Symptoms of onset of labor finally forced interference. Laparotomy

was performed, the fœtal sac opened and the child extracted. The tripartite placenta had a pelvic insertion and was adherent to the uterus. In place of marsupialization the author dissected out the placenta and membranes after preliminary ligation of the vessels in the broad ligament and of such omental vessels as appeared to supply the fœtal sac. Certain of these latter anastomoses, however, were overlooked and their rupture led to a serious hæmorrhage. A rubber drainage tube was put in place and the wound closed. The patient suffered at first from the loss of blood, but slowly recovered. In the course of convalescence a small sponge was passed at the point of drainage. The child at first showed derangement of nutrition but later developed normally.

The author calls attention to certain points in this case: The difficulty of diagnosis between tubal and mural pregnancy was due to the fact that the fœtal cyst was closely adherent to the uterus and that the placenta was attached to this organ, whence arose the impossibility of distinguishing between them by clinical methods of examination. There was no deciduum passed off from the uterus.

In dissecting off the placenta and membranes the two chief sources of hæmorrhage are the vessels of the broad ligaments on the corresponding side and the omental anastomoses. Boquel claims that the breaking up of the adhesions with neighboring abdominal viscera, such as the intestine, colon, or even the uterus, never gives rise to hæmorrhage unless these viscera are injured. In spite of the danger from hæmorrhage, he prefers dissection of the sac to simple marsupialization, because the latter leads to indefinite suppuration and often to herniation.

The author's conclusions concerning the treatment of such cases are as follows:

"In the case of pregnancy which has arrived close to term, I would propose to intervene in the following manner without awaiting for symptoms of false labor:

"First, a median incision should be made which should, as far as possible, avoid the placenta; second, the sac should then be opened and the child extracted without tension on the cord or on the sac; third, the relations of the sac should be determined and if the case appears favorable, notably if the placenta is inserted toward the pelvic portion, marsupialization should be abandoned in favor of the following procedure:

"In the first place, the preliminary hæmostasis should be made as complete as possible by finding and clamping off the uterine and the utero-ovarian pedicles, as well as all visible omental anastomoses, care being taken to avoid laceration of or tension on the sac. In the second place, the placenta must first be quickly and completely dissected off without hesitation, after which, as in artificial delivery, the membranes should be slowly drawn out, constantly watching to see if they contain any vessels which run into the placenta tissue. If these are present they should be clamped. In the third place, the dissection and extraction of the membrane should be completed wherever possible by the use of the fingers rather than with instruments. In the fourth place, a simple strip gauze drain should be used rather than a Mikulicz. The utility of the former may be questioned, but if left in place for forty-eight hours it may constitute a real safeguard and has no great inconveniences.

"I have already spoken of the easy expulsion of a sponge which had been overlooked during the course of the operation. One should never be supplied with a large number of small sponges, but with a few large ones, the boxes for these being kept separate. A moment of excitement sometimes leads to this error, especially when the equipment at one's disposal is rudimentary and sufficient illumination is lacking." L. Chevrier.

Andrews: A Case of Simultaneous Intrauterine and Extrauterine Pregnancy, with Probable "Internal Wandering" of the Ovum. *Proc. Roy. Soc. M.*, 1912, vi, 52. By Surg., Gynec. & Obst.

Patient, aged 29, married five years; two children, the younger two and a half years old; last period July 9; began to have pain September 17, and September 19 lost a large amount of blood per vaginam and passed a small embryo, seen by the nurse but not by the doctor. When she entered the hospital September 20 she was blanched and evidently in severe pain: pulse 130 per minute. The cervix was dilated and the greater part of an ovum of about two months removed with placenta forceps. The abdomen was opened and found to contain a large amount of blood. The left tube and ovary were normal but on the right side no ovary or tube could be found. At the right cornu of the uterus was a rupture making a rough surface the size of a shilling, attached to which was a blood clot containing a small embryo. This case is of interest because of coexisting intrauterine and extrauterine pregnancy; the extrauterine being interstitial, and in the absence of the right tube and ovary.

Cases with internal wandering of the ovum are rare. Wyder in 1886 recorded a case and quotes other cases recorded by Schultse and Hassfurther in 1863. C. H. Davis.

Cobb: The Management of the Grave Emergency Cases of Extrauterine Pregnancy. *Ann. Surg.*, Phila., 1912, lvi, 835. By Surg., Gynec. & Obst.

This paper is based on a careful study of 137 cases of tubal and interstitial pregnancy at the Massachusetts General Hospital from 1902 to 1910. The object of the study was to obtain information in regard to the wisdom of immediate operation in the desperate cases of rupture with severe hæmorrhage. It is regarded as important to contradict the teachings of certain prominent gynecologists in this country who have advised the dangerous method of delay in these cases.

The cases have been divided into two broad

classes: 1. The grave emergencies, with sudden symptoms followed by alarming hæmorrhage, which cases need operative treatment at once — it is this class to which the writer has paid special attention, the number of which is 36. 2. The non-emergencies, with less alarming symptoms and signs of varying degree and kind. This second class can be further subdivided into: (*a*) partial ruptures with recurring progressive and slight hæmorrhages; (*b*) tubal abortions; (*c*) cases of unruptured tubal pregnancy.

A study of all the cases justifies the following conclusions:

1. More than 33 per cent of extrauterine pregnancies occur in young women who have never before been pregnant.

2. Salpingitis, or pelvic infection, is not an essential or frequent causative factor.

3. Most of the cases of complete rupture with alarming hæmorrhage occur in the early weeks, often in the first month; these are the cases that are rapidly fatal unless operated on. Cases that have gone two months or more are those that furnish the greatest number of non-emergency cases.

4. Cases of sudden, severe rupture, until signs of marked intra-abdominal hæmorrhage are present, often simulate other grave abdominal emergencies, with abdominal tenderness and spasm, high white blood count, fever, and vomiting.

5. In grave emergencies, with signs of extreme hæmorrhage, operation should be done at once, without waiting for a possible reaction.

6. In the less severe cases of tubal rupture, without signs of marked hæmorrhage, a correct diagnosis is often difficult or impossible.

7. The menstrual history cannot be depended upon; many of the most alarming cases had skipped no period.

8. The character and location of the pain may vary within wide limits.

9. Tubal abortions are nearly as frequent as tubal ruptures. Cases of tubal abortion seldom give a history of skipping a menstrual period, but after a history of continued slight flowing or dribbling since the period.

A detailed analysis of the cases is made, furnishing interesting statistics: 36 were cases of desperate emergency — the left tube was involved in 18 cases, the right tube in 15; 17 cases ruptured early — from three to six weeks; 7 cases under four weeks; 6 between the sixth and eighth weeks. Temperature was normal in but two cases. In 15 cases it was over 100° F. The highest was 102.5° F. The leucocyte count was very high in the majority of cases, from 20,000 to 45,000; in one case 9500. In 16 cases the onset was sudden, with no warning symptoms. In 17 cases some warning signs preceded for from one to ten days. In 7 cases there was general abdominal pain from 8 to 36 hours before the acute onset. Hæmoglobin estimation varied from 35 per cent to 70 per cent. In only 13 cases could a mass be felt by vaginal examination. Vaginal bleeding at the onset occurred in only 7 cases. In 10 cases active arterial hæmorrhage was going on at the time of the operation. Twenty-eight cases recovered; 5 died. Of these latter, two failed to survive the operation, one died of continued hæmorrhage where no ligatures were used, one died of septic peritonitis a week after, and one of pneumonia on the eighteenth day.

In arguing for immediate operation one must take pains to consider only the really desperate cases, and in considering the mortality and estimating the percentages only the deaths due to the operation itself should be taken into consideration; late deaths from peritonitis, pneumonia, etc., must be thrown out.

With this in mind the following statements are made:

1. Immediate operation is the method of choice.

2. Delay, even for transfusion, is dangerous and fatal, and especially delay with stimulation.

3. With proper technique and the use of intravenous salt solution, the percentage of deaths directly due to operation will be very low.

4. In a very small percentage of cases direct transfusion will be needed and will save the small number of cases that would be fatal otherwise.

5. Direct transfusion should be done after operation, not before.

6. At present, with the availability of infusion and direct transfusion, it is criminal for any operator of reasonable skill to delay. CAREY CULBERTSON.

LABOR AND ITS COMPLICATIONS

Stookes: Spontaneous Rupture of the Uterus and Pulmonary Embolism. *J. Obst. & Gynec. Brit. Emp.*, 1912, xxii, 356. By Surg., Gynec. & Obst.

The patient in this case was a woman of 30 years who had had seven previous labors. Her first four labors and the seventh were normal. The fifth was instrumental and at the sixth there was some trouble with the placenta. The eighth pregnancy went to term and a midwife attended her in labor. While vomiting a sudden and severe pain was felt in the abdomen. A doctor was called, who could make out no presenting part, the cervix admitting but one finger. Vomiting and pain continued and five ounces of castor oil and two enemata were given in 24 hours. Next day her general condition was bad and she was transferred to the Liverpool Maternity Hospital where abdominal section was performed. Beneath the peritoneum was found a thin layer of blood and the bag of membranes. This was intact and contained a dead child weighing 6 lbs. 13 oz. The uterus was firmly contracted in the pelvis, having expelled the complete unruptured gestation sac into the peritoneal cavity. There was a ragged tear on the posterior uterine surface extending obliquely from about the right tube down nearly to the cervix in the middle line. The placental site was on the anterior uterine wall. The uterus was swabbed out and sutured. The abdomen was closed with rubber tube drainage. Convalescence was going along well when, on the sixteenth

day, pain in the left chest and dyspnœa suddenly occurred, with increased pulse and respiration. Very little air was entering the lower lobe of the left lung. This persisted for three days, after which she improved and was discharged one month after entering the hospital. CAREY CULBERTSON.

Rongy: Indications for Pubiotomy. *Internat. J. Surg.*, 1912, xxv, 377. By Surg., Gynec. & Obst.

The author is impressed with the development of a relative standardization of method in obstetric surgery during the past decade. Not only the pelvis but the fœtal head plays an important rôle in normal labor and in operative delivery. A given pelvis may permit the passage of a small fœtal head during one labor while a larger head in a subsequent pregnancy will bring about a labor complication. In slightly or moderately contracted pelves induction of labor in the thirty-sixth week of pregnancy is not safe for the mother, with a fœtal mortality practically nil. Craniotomy should be eliminated as a procedure on the living child where the mother's condition is good. In the light of present knowledge high forceps is hardly a justifiable operation. Not only must the lives of mother and child be saved but the maternal morbidity must be lessened. In modern work we must consider the effect of the operation upon the mother, the effect upon the child, and thirdly, the operation from a purely technical and surgical standpoint. Hence high forceps does not appeal to Rongy as being technically good surgery. For these reasons abdominal Cæsarean section is an ideal operation if performed early. But after other efforts at extraction such a method is contraindicated and pubiotomy is only to be considered. Pubiotomy is the only operation in border-line cases that have been mismanaged or misjudged. Rongy reports six cases of extramedian section performed after the technique of Döderlein in general, extracting with the forceps, episiotomy being employed in primiparæ.

In conclusion Rongy states that while his results from this operation were quite favorable, he still feels that it must be performed in cases where there is no other alternative. It must also be performed very carefully, and if one is not trained in gynecological surgery it should not be undertaken. The injuries to the soft parts and to the bladder and urethra may be quite extensive. The sacro-iliac joint may be injured, and if this possibility is not borne in mind, this will result in permanent disability. Hæmorrhage may be profuse and at times uncontrollable. Communicating vaginal tears take place in a moderate number of cases. Pubiotomy should never be the operation of choice; it is always one of emergency. In cases that have been misjudged and neglected, with the child still viable, it is the only method of procedure, but only an experienced obstetrician should undertake its performance.

Under these circumstances, pubiotomy has a definite field, and does not compete with either Cæsarean section or high forceps delivery. In cases where Cæsarean section is indicated, pubiotomy is contraindicated, and vice versa. CAREY CULBERTSON.

Davis: Control of Post-Partum Hæmorrhage by Means of Manual Compression of the Aorta. Cæsarean Section in Placenta Prævia. *Surg., Gynec. & Obst.*, 1912, xv, 662.
By Surg., Gynec. & Obst.

Momburg's method of compressing the aorta, in cases of hæmorrhage from pelvic vessels, directed attention towards compression of the abdominal aorta in the treatment of acute and serious hæmorrhages. This method has proven useful in cases of ruptured ectopic pregnancy, placenta prævia, premature separation of the normally located placenta, and rupture of the uterus. This procedure is of value in some cases of post-partum hæmorrhage. In critical cases, a direct compression of the aorta by a hand in the uterus not only stops bleeding, but gives the obstetrician an opportunity to treat the local focus. For example:

A multipara in the seventh or eighth month of pregnancy was brought to the Jefferson Hospital in an extremely anæmic condition, the result of an uterine hæmorrhage. The placenta had separated prematurely. Examination excluded placenta prævia. As she was being prepared for dilatation of the os, she suddenly collapsed. After being transferred to the operating table, the cervix was quickly dilated, a hand was introduced into the uterus and the knuckles of the fist were pressed against the aorta near its bifurcation. An assistant gave intravenous infusions of physiological salt solution and strychnin, ergot, atropin and digitalin subcutaneously. Then the uterus was washed out with a hot antiseptic solution and when the patient had regained consciousness, the uterus was tamponed with 10 per cent iodoform gauze. The patient recovered.

The most recent literature on placenta prævia centralis shows how successful the Cæsarean operation is in such cases. The author suggests that placenta prævia centralis be considered an ectopic pregnancy, in that "ectopic" merely signifies attachment of the ovum in an atypical place. The Cæsarean section decreases the hæmorrhage, lessens the danger of infection, and is justified in cases of placenta prævia where mother and child are in comparatively good condition and no danger of infection from previous tampons is likely.

Of seven such cases operated on by the author, all recovered; three living children were delivered. The Porro operation was performed where a suspicion of infection existed. In the other cases the classical Cæsarean section was performed, followed by lavage of the uterine cavity with physiological salt solution and subsequent packing with 10 per cent iodoform gauze.

Many authorities agree that the vagina should not be packed with gauze in cases of placenta prævia centralis. The author cites a case that ended fatally.

A multipara was brought to the clinic after having lost much blood at her home where an attending physician had tamponed the vagina. At the hospital a Cæsarean section was made and the child saved. The woman died six days after the operation. At autopsy, a generalized peritonitis was found, but uterus, appendix, gall-bladder, etc., were intact, the wound in the uterus being normal in appearance. Streptococci, staphylococci, and coli communis were found in the exudate of the peritoneal cavity. The uterine cavity was sterile. The portal of entry must have been the cervix, which was distended by the tampon of the vagina.

L. W. Sauer.

PUERPERIUM AND ITS COMPLICATIONS

Wallace: Puerperal Pelvic Thrombosis; Ligature of Left Common Iliac Vein. *J. Obst. & Gynec. Brit. Emp.*, 1912, xxii, 351. By Surg., Gynec. & Obst.

Wallace here reports the case of a woman aged 25 who developed rigors and pyrexia on the sixth day after her third parturition. Thrombosed veins were palpable along the line taken by the left uterine and left obturator veins. She appeared desperately ill, temperature reaching 106° F., pulse 160. Exploratory laparotomy was performed on the 23d day. A tortuous vein in the left broad ligament was found to be thrombosed as far out as the infundibulopelvic ligament. The left internal iliac vein was thrombosed up to its junction with the external iliac. The anterior branch of the internal iliac was also thrombosed and could be traced forward and inward toward the uterus. Induration could be traced along the left obturator vessels. The surrounding tissues were moist and did not yield readily to blunt dissection. Therefore, it was decided not to attempt removal of the thrombosed veins but instead to ligate the left common iliac vein. This was done. For three days following there were no more rigors and the patient felt better. Pyrexia, however, continued and after the fourth day rigors again occurred, the patient ultimately dying from exhaustion. This case is interesting in that it shows the extreme difficulty in dissecting out veins in well-marked puerperal thrombosis and as an illustration of the futility of closing up one set of exits from the thrombosed area. Carey Culbertson.

Walton and Medalia: Hæmolytic Streptococcus and Puerperal Septicæmia. *Surg., Gynec. & Obst.*, 1912, xv, 682. By Surg., Gynec. & Obst.

We have studied 103 labor cases, ante- and post-partum, with special reference to the finding of hæmolytic streptococci in the parturient canal by means of the blood-agar method (Schottmüller), and to determine upon the relation of hæmolysis as an index to virulence; also with reference to the autogenous or exogenous source of infection, and the value of a routine bacteriological examination post-partum for purposes of detecting "healthy" and "unsuspected" carriers of puerperal sepsis.

In the 103 cases examined we obtained the following results: *Ante-partum.* Before any digital examination was made we found hæmolytic streptococcus in 1 case, 1 per cent; non-hæmolytic streptococcus in 21 cases, 20.91 per cent. (As to location, vagina or cervix, see article.) *Post-partum.* We found hæmolytic streptococcus in 9 cases, 8.73 per cent; non-hæmolytic streptococcus in 17 cases, 16.5 per cent. Out of the 9 cases with hæmolytic streptococcus post-partum only 2 had morbid temperature and 2 mildly febrile temperature. Of the 17 cases with non-hæmolytic streptococci post-partum 5 were found with a morbid temperature and 4 with mildly febrile temperature. (Bacteria other than streptococci (staphylo, pneumo, b. coli, pseudo K. L., etc.) were found in 76 (73.80 per cent) of the 103 cases ante- as well as post-partum. Four of the 76 were morbid and four were mildly febrile post-partum, while there were only 5 cases found sterile ante-partum and only one case post-partum.)

From the observations just cited we have to recognize the presence of a hæmolytic and non-hæmolytic type of a streptococcus, and further, that the hæmolytic streptococci are not always virulent, nor are the non-hæmolytic streptococci always avirulent. The presence of streptococci of either type must therefore be looked upon as capable of causing sepsis. Clinically, however, the finding of a hæmolytic streptococcus would indicate greater severity.

Our finding of hæmolytic streptococci in 5 afebrile and 2 mildly febrile, also non-hæmolytic streptococci in 4 mildly febrile and 8 afebrile cases, all of which may be considered as possible carriers of infection, would have been overlooked without the routine bacteriological examination. The finding of streptococci ante-partum in the 2 cases with morbid temperature post-partum, due to hæmolytic streptococci, also the 2 morbid cases due to non-hæmolytic streptococci in whom we found the same organism ante-partum would indicate that autogenous or endogenous infection of puerperal sepsis is of equal importance with exogenous infection as to frequency, but not as to severity of this disease. The routine bacteriological examination of maternity cases would seem, according to our findings, to be of great practical value from the standpoint of prophylaxis in detecting "healthy" and "unsuspected" carriers of infection; and finally, extragenital infections with faulty personal hygiene on the part of the patient would tend to increase the possibility of autoinfection as a source of puerperal septicæmia.

GENITO-URINARY SURGERY

KIDNEY AND URETER

Rövsing: The Diagnosis of Tuberculosis of the Kidney in Very Early and Very Advanced Cases. *J. Am. M. Ass.*, 1912, lix, 2228.
By Surg., Gynec. & Obst.

Rövsing says he has found that albumin may be absent in the urine in surgical tuberculosis of the kidney. In all cases of albuminuria, pyuria or cystitis, a chemical, bacteriologic and microscopic examination should be made. He has shown tubercle bacilli in 80.7 per cent of about 200 cases — allowing a twenty-four hour urine to precipitate and examining the precipitate. Pus in the urine without bacteria practically assures the presence of tuberculosis. He recalls his report of toxic albuminuria in which, in spite of albuminuria from the other kidney, he extirpated the tuberculous kidney, with a disappearance of the albuminuria. He has given up complicated methods of testing kidney function in favor of the quantitative urea analysis, with Esbach's ureometer.

By nephrectomy 75 per cent of all patients operated on can be saved, hence nephrectomy is indicated as soon as the diagnosis of unilateral tuberculosis is made. He discusses the prognosis and treatment of kidney tuberculosis and strongly favors the use of phenol in bladder tuberculosis.

L. G. Dwan.

Robins: Suppurative Pylephlebitis. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

A case of suppurative pylephlebitis which occurred in his practice in 1911 was related in detail by Robins. In this case Van Cott's vaccines were used; in all, 28 doses were given. It seemed to him that these vaccines caused improvement for a time; but finally the patient's abdomen was opened in two places, and it was found that the fluid had become purulent. The patient gradually declined, and died after an illness of 150 days.

In view of the fact that this malady was usually rapidly fatal and that no plan of treatment had yet effected a cure, he thought treatment along this line by vaccines offered the only hope, and the apparent success of these vaccines at one time in this case was encouraging.

E. S. Talbot, Jr.

Mason: Acute Hæmatogenous Infection of the Kidney. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.
By Surg., Gynec. & Obst.

In this paper Mason reported three cases and summarized them as follows:—

(1) Acute hæmatogenous infection or septic infarct of the kidneys is of comparatively frequent occurrence, and is often overlooked. (2) Serious injury to or disease of one kidney acts as a predisposing cause. (3) While nephrectomy is demanded in the fulminating type, early diagnosis and operation will permit of decapsulation with incision and drainage of infarcts in certain of the milder cases, thereby saving some kidneys which would require removal if treated later. (4) The relation of movable kidney to the development of septic infarct offers an indication for nephropexy worthy of consideration. (5) When exploration in acute supposedly abdominal conditions fails to reveal lesions sufficient to account for the symptom present, the possibility of septic renal infarct should be borne in mind and the condition of the kidney ascertained before completing the operation.

E. S. Talbot, Jr.

Cunningham: Acute Unilateral Hæmatogenous Infections of the Kidney. *Ann. Surg.*, Phila., 1912, lvi, 818.
By Surg., Gynec. & Obst.

The author points out that acute unilateral inflammation of the kidney is a condition which is frequently mistaken for other acute inflammatory diseases within the abdomen, especially appendicitis and gall-bladder disease. The disease starts in the kidney by the lodging of from one to a few micro-organisms, the usual organisms being the pyogenic cocci and the colon bacillus.

The pathological process produced is of two types, first, multiple miliary abscess formation, second, a diffuse inflammatory process without suppuration. The former type clinically produces a rapid toxæmia, the picture is that of severe sepsis, temperature 102–105°, high leucocytosis, all appearing within 24 to 48 hours after the onset, which is usually characterized by a chill and vomiting. Pain on the side of the affected organ, abdominal tenderness, muscular rigidity and spasm is found on the affected side. The abdominal signs are similar to those occurring in acute infection of the appendix and gall-bladder, for which the disease under consideration is often, if not usually, mistaken. The pathognomonic signs are lumbar tenderness, rigidity and tenderness on the affected side.

The urine in this condition is usually quite normal in its gross appearance, contains but little albumin, and microscopically there is but a small amount of pus and blood cells. The treatment of this form of the disease is nephrectomy.

The diffuse inflammatory process in the kidney, without abscess formation, is characterized by an inflammatory exudate, spreading through the kidney, resulting in focal abscesses and a solution of tissue. This type of the disease presents a pathol-

ogy more commonly the result of an ascending infection, but is encountered as a process of hæmatogenous origin and results from an infection of the organ, not by the pyogenic cocci, as does the abscess type, but by the colon bacillus.

The clinical course of this form of the disease differs in severity from that of the abscess type, because of the lesser virulence of the infecting organism. The onset may be sudden, as in the former type, the temperature rising rapidly to 102° or more, and the leucocytosis is often high.

The abdominal symptoms are less pronounced, but tenderness over the kidney in the costo-vertebral angle with some muscular rigidity are constant signs. The chief feature differentiating this form of the disease from that of abscess formation is the lack of progressive toxæmia and the presence of more abnormal elements in the urine.

In this form of the disease it is felt that palliation, forcing fluids, and the employment of urinary antiseptics, fortifying the patient's strength by a nutritious diet and stimulating drugs, should be instituted at the onset. Operative interference should only be undertaken when the symptoms and physical signs give evidence of progression to the point of lowering the general resistance by toxic absorption. Favorable results have been obtained by palliative treatment decapsulation, and by splitting and draining the kidney.

The author gives a detailed account of 8 patients of those two classes of kidney infection upon which he has operated, and mentions the cases recorded by other writers.

Cordier and Mazel: Acute Intoxication from Bichloride of Mercury (Intoxication aiguë par le sublimé). *Lyon méd.*, 1912, cxix, 1023.

By Journal de Chirurgie.

Cordier and Mazel report a case of a young girl, 19 years old, who attempted to commit suicide by drinking a solution of 2½ to 3 grains of bichloride of mercury. Severe vomiting, accompanied by a profuse diarrhœa and abdominal pain was followed by the syndrome of mercurial nephritis. Suppression of urine was extreme. The urine voided gave a heavy albuminous precipitate and was filled with all varieties of casts. Uræmia soon intervened.

Medical treatment failed and on the fourth day of the intoxication a double decapsulation and nephrotomy, according to Leriche's method, was performed. The following morning the patient urinated 80 cc. of clear urine, which contained only a trace of urea. On the second day after the operation she did not urinate, but the dressing was saturated with a liquid of a urinous odor. The patient died on the fourth day after the operation, which was the eighth day of the intoxication.

Relative to this case, Mazel reports the case of a young man 30 years of age, who had taken about two grains of bichloride of mercury. The stomach was washed out one hour later, and the patient was made to gargle. Immediately following this he complained of excruciating epigastric burning and was extremely salivated. The following day he urinated 300 cc. of urine and had diarrhœa. On the next day, he eliminated 200 cc. of a very albuminous urine which contained many casts. On the fourth day of the intoxication, complete anuria occurred. A double decapsulation was performed on the second day following this. On the same day 30 cc. of urine were obtained by catheterization and five hours later the patient passed spontaneously 25 cc. Sudden death occurred during the night.

At autopsy, the kidney showed acute parenchymatous nephritis; congestive subperitoneal ecchymosis of the last 40 cc. of the large intestine, and hepatization of the right upper lobe and an œdematous congestion of the left lobe.

Nove, Gosserand and Gremien studied the lesions of mercurial nephritis from sections taken from the first case reported above and from the post-mortem specimen taken from the second case. These lesions show similar characteristics, although they were more pronounced in the second case. In the post-mortem specimen, the epithelial desquamation was very advanced; the glomeruli were generally intact; and there was desquamation of the supranuclear part of the epithelium of the convoluted tubules. The epithelial débris plugging the tubes accounted for the anuria.

It would appear from the above that nephrotomy would permit the evacuation of the tubular plugs and the regeneration of the epithelium, but this operation must be performed early. The authors after experiments upon 19 rabbits and guinea pigs arrive at inverse conclusions:

They demonstrated in these experiments that nephritis results from the injection of bichloride of mercury. Following the occurrence of this they performed nephrotomies, or decapulsations. The urines were collected and analyzed every 24 hours and histological examinations were made. In nearly all of these cases they demonstrated lesions of the liver and of the intestinal tract and in short, that death resulted from a general intoxication. When the intoxication was severe the animals died in spite of double decapsulation or unilateral nephrotomy (the rabbit does not bear double nephrotomy). In the severe forms, the results are very doubtful. Thus, experimentally the surgical treatment of mercurial nephritis is not satisfactory.

R. Leriche.

Wilson: The Embryogenetic Relationships of Tumors of the Kidney, Suprarenal and Testicle. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912.

By Surg., Gynec. & Obst.

The basis of Wilson's paper consisted of a study of the pathological specimens obtained at operation and autopsy in the Mayo clinic and a study of the human and comparative embryology of the urogenital system. The results of his observations were as follows:

Renal tumors. (1) Of 92 tumors studied, there

were 3 pelvic papillomata, 4 carcinomata, 1 squamous-cell epithelioma, 1 adenoma, 1 fibroma, 7 sarcomata, 1 Wolffian tumor, 3 embryomata (Wilms's tumors), and 71 mesotheliomata. (2) The renal pelvic papillomata and carcinomata apparently arose secondarily to chronic irritative processes of the adult pelvic epithelium. (3) The rare squamous-cell epithelioma probably was a neoplastic development from the embryonic inclusion within the renal pelvis of ectoderm which had found its way into the lower end of the primitive excretory duct by way of the cloaca. (4) The embryomata of the renal cortex, composed of renal and other tissues, and occurring in young children were, according to Wilms, derived from inclusions of the lateral embryonic plate within the caudal portion of the nephrogenic cord in the early embryo. (5) The most numerous tumors of the renal cortex, the so-called hypernephromata or Grawitzian tumors, were apparently mesotheliomata derived from nephrogenic vesicles which had failed in the early embryo to form a tubular connection with the renal pelvis. (6) Most of the few true sarcomata of the kidney developed primarily in adult tissue of the renal capsule and involved the cortex secondarily. (7) The renal cortex was also frequently the site of inclusions from the mesonephros and rarely of inclusions from the suprarenal gland. Rarely, if ever, did either of these inclusions in the renal cortex form malignant tumors.

Adrenal tumors. (8) Of the 3 primary tumors of the adrenal studied, 1 was an adenoma and the other 2 hypernephromata arising from the adrenal cortex. (9) Primary malignant tumors of the adrenal were either round-cell sarcomata or more frequently hypernephromata arising from the adrenal cortex. (10) Adrenal hypernephromata frequently induced abnormalities of sex and strength. (11) Tumors of the adrenal, in whatever stage of their development, bore no histological resemblance to most mesotheliomata (so-called renal hypernephromata).

Testicular tumors. (12) Of the 21 tumors of the testicle, all of the 10 which it was possible to study in histological detail were teratomata. (13) So far as could be determined, the history and histology of these 19 cases were in harmony with Ewing's hypothesis that teratomata of the testicle arose from sex cells whose normal development had been suppressed. (14) The difference in time of development of the embryonic crop of genitaloid cells and the next generation, which appeared at puberty, might account for variations in structure and tempo of the testicular teratomata.

E. S. Talbot, Jr.

Nicolich: Hydatid Cysts of the Kidney Opening into the Intestines; Nephrotomy; Recovery (Kyste hydatique du rein ouvert dans l'intestin; nephrotomie; guérison). *J. d'Urol.*, 1912, ii, 842.

By Journal de Chirurgie.

Nicolich reports a case of hydatid cysts of the kidney in a woman who five years before had recovered from a hydatid cyst of the right lung which had ruptured into a bronchus. The patient was 39 years of age. At the age of sixteen she had noticed a mobile tumor in the right side of the abdomen which had gradually increased in size and had become painful. Seventeen years later pulmonary symptoms had developed which had terminated with the expulsion of a number of hydatid cysts. In the meantime, the abdominal tumor had continued to grow and hydatids were frequently found in the urine. This tumor lay just beneath the liver, and extended as low as the iliac region. It was almost spherical. Cystoscopy showed pus, draining from the right ureteral orifice. Ureteral catherization on the left side yielded clear urine. In the meantime, the patient had an attack of diarrhœa in which several successive stools contained hydatids. Nephrotomy was carried out under spinal anæsthesia. The lower pole of the kidney was enlarged and contained a cavity full of pus, but without any trace of hydatids. A few days later, however, fragments of germinal membrane were cast off through the drainage tube. Healing resulted without fistula formation. Similar cases are rare. Crauwel, in 64 cases of pulmonary hydatid cysts, reports only three in which spontaneous healing followed rupture of the cyst into a bronchus and no case of hydatid cyst of the kidney opening into the intestines.

J. Tanton.

Stone: Hypernephroma of the Kidney. *Surg., Gynec. & Obst.*, 1912, xv, 665.

By Surg., Gynec. & Obst.

The difference between hypernephromata and carcinomata and sarcomata is pointed out, the author giving Keen's definition of the former as "tumors arising from adrenal tissue," whether in the normally situated gland or in ectopic fragments known as "rests." The possibility of the location of these rests in other portions of the body has opened up a wide field for research. Hypernephromata are rare as compared with other malignant growths but are the most frequent of all malignant tumors of the kidney and are relatively increasing.

The characteristic symptoms are: pain, often at some distance; marked anæmia; manifestations of a slight infection with a moderate leucocytosis; exceptionally red cells are present in the urine, and rarely a tumor mass is palpable. Metastases are common and most frequent in the lungs, liver, bones or line of incision.

Three cases are reported. In the first the patient lived over 6 years after operation, finally dying of malaria. The second case had a recurrence in the scar in less than a year which resulted fatally within a year. The third had symptoms referable to the digestive organs for three years, with pain below the left kidney. At operation the colon was found adherent to the kidney, which was removed. The patient has remained well for a year.

E. K. Armstrong.

Payne and Macnider: A Study of Unilateral Hæmaturia of the So-Called Essential Type. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Payne and Macnider reviewed the literature on this subject and reported five cases of unilateral hæmaturia of the so-called idiopathic type, which were relieved of all symptoms by nephrotomy. The authors were inclined to believe that in the majority of these cases of unilateral hæmaturia the condition was one of chronic inflammation of one type or another, and detailed a series of experiments which apparently excluded as a causative factor certain developing vascular changes. These experiments would, therefore, apparently contravene Klemperer's theory of angioneurotic œdema, and also Albarran's idea of a slight lesion of nephritis being a sufficient cause of the unilateral hæmaturia.

E. S. Talbot, Jr.

Baldwin and Baldwin: Surgery of the Kidney, Based on Case Records of Ten Years. *Am. J. Urol.*, 1912, viii, No. 12. By Surg., Gynec. & Obst.

This report, based on the case records of J. F. and Hugh A. Baldwin, years 1902 to 1912, embraces sixty-seven nephrectomies; 75 per cent of these cases survived the operation; eleven of the fifty survivors have died since, only one however by reason of failure of the other kidney. Four of the women of this series, together with two of a preceding period, have given birth to children. Tuberculosis was the cause of thirty-four of the nephrectomies, with a primary mortality of 20 per cent. Only six of the survivors have died since. A study of these cases shows that a nephrectomy with complete recovery does not greatly shorten the expectancy of life.

Anchoring of the kidney was done sixty-one times. Reports received from fifty-four of these indicated complete success in forty-five, great improvement in four, complete failure in five. The Baldwin technique was used, two flaps of the kidney capsule being sewed to a column of muscle derived usually from the edge of the quadratus lumborum.

The mortality figures for nephrotomy must always be high, as it is at best a makeshift operation done because the serious condition precludes a more complete operation.

Decapsulation for chronic nephritis, in the only case where it was given a fair trial, proved a brilliant success; in four other last-resort cases it failed to do any permanent good although it did not hurry the demise. A double decapsulation can be done in less than fifteen minutes. Decapsulation of the remaining kidney is suggested after nephrectomy, when the urinary suppression is due to acute congestion. The possibilities of kidney surgery are great; and the amount of kidney substance necessary to life is small.

Fairchild: Decapsulation of the Kidney. *J. Am. M. Ass.*, 1912, lix, 2234. By Surg., Gynec. & Obst.

Fairchild has collected all available reports in the French, German, Italian, English and American literature attempting to arrive at conclusions as to what cases should or should not be decapsulated. He found reports of ninety-two cases with definite results from forty-four different operators. Sixty-two patients recovered; thirty died, giving a mortality of about 33 per cent. About 30.8 per cent of the cases of eclampsia, under any treatment, end fatally. He could discover no good results from decapsulation in any case in which the kidney had undergone degenerative changes. The results were good in inflammatory cases in which the degenerative changes had not gone too far. L. G. Dwan.

Siter: Results of Experiments on Kidneys with Especial Reference to Decapsulation and Establishment of Collateral Circulation. *Surg., Gynec. & Obst.*, 1912, xv, 702. By Surg., Gynec. & Obst.

As the result of animal experimentation, attention is directed to the possibility of forming new capsule in the kidney after the old capsule has been removed, and the forming of collateral circulation by substituting the omentum for the old capsule.

The following facts have been proven:

That the kidney increased in size upon decapsulation.

That wrapping the decapsulated kidney in the omentum is immediately successful in forming a new capsule.

That collateral circulation is established at the end of ten days.

That collateral circulation is sufficient to allow the kidney to functionate properly when the renal blood-vessels are tied off.

That the kidney remains much enlarged when the capsule is removed.

That forming a new capsule from the omentum prevents adhesions between the kidney and the surrounding soft parts and increases the blood supply.

Mayo: The Surgery of the Single and Horseshoe Kidney. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

In this paper, Charles H. Mayo stated that developmental abnormalities of the genito-urinary system were very frequent. Of this group, irregularities of the circulation of the kidney were the most common. Their own autopsy records had shown in a single year as high as 4 per cent of cases presenting gross anomalies of the kidney and ureter of surgical importance. That it was necessary for the surgeon to thoroughly understand these anomalies was obvious, from several points of view. A knowledge of the early development of the genito-urinary system made intelligible the resultant anomalies and various pathological conditions. We saw the possible development of congenital cystic kidney resulting from a failure of certain portions of the secreting renal tissues to become united with the collecting portion. Wilson had called attention to the probable development of the so-called hyper-

nephromata as neoplastic growths from similarly unattached secreting portions of the kidney.

Among 36 cases of gross renal and ureteral anomalies observed in their clinic during five years, 7 were found incidental to other abdominal operations; 12 were of the horseshoe type and 6 of the single or symmetrical type. Of 649 operations on the kidneys and ureters during this period of five years, there was an average of one serious anomaly associated with disease in every 26 cases. In the horseshoe form, 90 per cent were fused at the lower pole. At the point of union there might be only connective tissue (in 15 per cent of the cases). Usually the fusion consisted of renal tissue and varied from a small area to the full width and thickness of the kidney. Ninety per cent of cases were fused in front of the great vessels. The most common disease affecting horseshoe kidney was hydronephrosis, which might later develop into pyonephrosis. This hydronephrosis occurred in moderately young individuals, while pyonephrosis and lithiasis were usually seen in middle age or later. Tuberculosis was rarely seen. More horseshoe kidneys were found in women than in men, and more single kidneys in men than in women. When the kidneys were fused by heavy renal tissue, symptoms might undoubtedly be present. Rövsing recently published cases in which the diagnosis was confirmed at operation. Despite the diagnostic data which had been given, as a rule the condition would not be recognized before operation. Braasch indicated, in addition to the cystoscope and radiograph, the great assistance of pyelography with colloidal silver injections. The lesson to be learned, when we did not have absolute data as to the condition of both kidneys, was to always explore the other kidney, usually through a separate incision, before the removal of a tumor of the kidney or the removal of a diseased kidney. In abdominal surgery, where the type of the presenting tumor was questionable, the kidney should be palpated before removal of the tumor. In some instances transperitoneal incision was indicated. The lateral incision described by W. J. Mayo would suffice in most cases. At operation the possibility of horseshoe kidney must be kept in mind, especially whenever difficulty was experienced in delivering the lower pole. This occurred in the writer's last case, where pyonephrosis of half of the horseshoe kidney was present. The renal tissue, nearly the size of the normal kidney, passed in front of the large vessels. After examination of the blood supply, the fused portion was divided and sutured with catgut. In a case of horseshoe kidney, which was not otherwise pathological, Rövsing relieved the pain and general symptoms by division of the isthmus. E. S. Talbot, Jr.

Stevens: Pathologic Lesions of the Kidney Associated with Double Ureters; Report of a Case of Hypernephroma. *J. Am. M. Ass.*, 1912, lix, 2298. By Surg., Gynec. & Obst.

Stevens reports in detail a case of hypernephroma of the kidney associated with double ureters. He discusses the embryology of double ureter and associated conditions. Except for rare cases of solitary kidney, when a blind ureter may be found on the opposite side, for every ureteral orifice in the bladder there is a separate renal pelvis not communicating with other pelves in the same kidney. He reviews the literature of double ureter.

L. G. Dwan.

Harris: The Diagnosis of Ureteral Calculus by Means of the Wax-Tipped Whalebone Filiform Bougie Used with the Nitze Cystoscope. *Surg., Gynec. & Obst.*, 1912, xv, 727. By Surg., Gynec. & Obst.

The author explains his method of applying H. Kelly's idea of using a wax-tipped ureteral bougie for the diagnosis and location of ureteral concretions.

The author uses whalebone filiforms that are carrying an olivary tip, to the latter a wax pearl is attached by dipping it into melted beeswax; in case the operator should encounter an ureteral opening that would not permit of the passing of the olive enlarged by the wax coating, a wax spindle is attached around the shaft of the bougie two or three centimeters from the tip; the most essential point in the technique employed by the essayist is that he does not attach his wax until the bougie is passed through the cystoscope and is made to protrude out of the guiding channel far enough to be introduced into the distended bladder, the cystoscope is then guided over the bougie in the same manner as Nitze employed in his "Führungs Cystoscope"; before the bougie is introduced into the bladder its wax tip is examined with a magnifying glass in order to make sure of the integrity of its surface. In this way accidental scratching of the wax tip is avoided, and any scratch discovered on it after the bougie was inserted into and withdrawn out of the ureter can safely be ascribed to its contact with a concretion.

The essayist also suggests never to withdraw the bougie through the cystoscope after the examination is finished, but to withdraw the cystoscope alone, allowing the wax tip to remain in the ureter or bladder until the beak of the cystoscope has left the posterior urethra.

After the wax bougie is once removed its tip is washed in cold water and then inspected with a magnifying glass. All these technical suggestions mean certainly an improvement in the employment of the wax-tipped ureteral bougie if one cares at all to use this method, but it is very doubtful that the essayist will meet with approval of the majority of experienced urologists so far as his other statements and conclusions are concerned.

He claims for instance that a scratch is the best possible evidence for the presence of a stone in the ureter and that a negative result is equally reliable in excluding the possibility of calculus; how about a concretion embedded in a sacculation of a ureter or a calculus that is so covered with mucus, pus and débris that its surface will never come in contact with the wax tip that is gliding by? Kolischer.

Deaver: The Diagnosis and Treatment of Renal and Ureteral Calculi. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Sixty cases of renal and ureteral calculi were reported. Attacks of typhoid preceded the onset of symptoms of stone. A catarrhal condition of the pelvic and ureteral mucosa was the chief predisposing factor in the formation of kidney and ureteral stones. The initial symptoms were attacks of renal colic, trauma, falls, blows, or kicks over the kidney area. Repeated attacks of colic were more frequently due to stones in the ureter. Location, type, frequency of attacks, and points of reference of same indicated the site of the stone. Physical examination in cases of aseptic and uncomplicated renal and ureteral calculi gave no assistance in diagnosis in one half or more of the cases, but was of more assistance in renal than in ureteral cases, because of the presence of a palpable mass in a percentage of cases. The diagnosis was much facilitated in difficult cases by the use of pyelographic methods. Tenderness and muscular rigidity were the most important physical signs.

Microscopic hæmaturia immediately following a severe attack of colic was suggestive of stone. The skiagraph was the most valuable means at our disposal in the diagnosis of urinary calculi. In five of his cases the X-ray failed to find the stone, which in three instances was found at operation — in the ureter once, and in the kidney twice. The use of wax-tipped catheters was said to be in these rare cases the court of last appeal in diagnostic procedure, but the speaker relied entirely on the clinical history. The most frequent causes of ureteral obstruction were either physiological or anatomical.

Before attempting any operation it was necessary to satisfy one's self as to the functional activities of the renal tissue, to be assured that the reserve force of the healthy or, at least, diseased kidney was sufficient to sustain the renal function in the event of the necessity of nephrectomy, which could not always be foretold.

Stones situated in the lower terminal (2.5 cm. of the ureter) were removed transvesically. In renal calculus the kidney was exposed and if possible delivered through an oblique loin incision; the stone was palpated, and an incision made over it and the stone removed with forceps. In nine instances palpation failed to demonstrate the presence of stone. In five of these it was correctly located with the needle. Needling was a practical, harmless, and valuable procedure in cases in which palpation failed. The total mortality in the operated cases of this series was 6.5 per cent. E. S. Talbot, Jr.

Küttner: Struma Suprarenalis Hæmorrhagica. *Beitr. z. klin. Chir.*, 1912, lxxxii, 291. By Surg., Gynec. & Obst.

Küttner describes a case of hæmorrhagic cyst of the suprarenal capsule which he removed successfully by a kidney incision. The patient had none of the symptoms of Addison's disease which have been observed in similar cases. In reviewing the literature, Küttner finds that his was the only case in which the tumor was removed, other cases usually being treated by what is called marsupialization (sewing the sac to the skin incision and packing it with gauze tampons which later are gradually removed). Extirpation is preferable. As to the diagnosis, the author recommends the use of collargol injections into the pelvis of the kidney (Voelker), which will, by the X-ray picture, make a differential diagnosis possible between this rare affection and the intermittent hydronephrosis.

Carl Beck.

BLADDER, URETHRA, AND PENIS

Lengemann: The Cæcum as a Substitute after Extirpation of the Urinary Bladder. *Zentralbl. f. Chir.*, 1912, xxxix, 1697. By Surg., Gynec. & Obst.

Basing his method upon cadaver experiments of Taddei and a procedure developed by Spannaus, who implanted both ureters into a detached end of the lower ileum, Lengemann proceeds as follows:

1. The cæcum, the ascending colon and 30 cm. of the ileum are divided from the remaining intestinal tract. The proximal end of the ileum is implanted into the transverse colon close to its blind end. The appendix is carried obliquely outward through the abdominal wall and its tip removed. 2. After an interval of a few weeks, during which time the ascending colon is repeatedly irrigated, the bladder is extirpated. Through a small incision in the peritoneum, the shunted portion of the ileum is pulled out and the ureters implanted therein. It is scarcely necessary to free the ureters from the surrounding tissue. Closure of the slit in the peritoneum, drainage and tamponade of the wound cavity conclude the operation.

The course in a case operated upon in this manner was quite favorable. A coprostasis developed in the rectum which caused severe diarrhœa. At first this was interpreted as being due to elimination of a portion of the colon, but digital exploration revealed the true cause. Removal was soon followed by normal evacuations. The urine at first was cloudy, foul smelling and contained much pus and mucus despite frequent irrigation with silver nitrate, tannic acid, internal use of urotropin and the use of a permanent catheter. Injections of yogurt-milk, diluted, into the newly formed bladder twice daily to change the bacterial flora, was followed by much improvement within a few days. After a few weeks the urine contained only moderate amounts of mucous flakes. The new bladder holds 500 cc. Continence is present. The patient prefers a permanent catheter, which is opened as required, to the repeated introduction of a catheter. The procedure meets all demands which may be made. 1. The substituted intestine is free from fæces, hence the danger of an ascending infection of the kidney is minimized. 2. The ileo-cæcal valve and

the peristalsis of the portion of ileum offers some protection against reflux in case of an impediment to evacuation. 3. The ureteral implantation, which can never be entirely relied upon, is extraperitoneal, without tension or danger to the nutrition of the ureters. 4. The end of the loop of ileum is freely movable, permitting implantation of the left ureter without tension. 5. No blind pouch of intestine remains which may fill up with fæces.

The method is applicable in the removal of the bladder for malignant growth, in many cases of contracted bladder especially in younger individuals, and in exstrophy of the bladder. E. C. RIEBEL.

Martin: The Endoscopic Treatment of a Chronic Incrustated Bladder (Traitement endoscopique de la cystite chronique incrustante). *El Siglo medico*, 1912, lix, 831. By Journal de Chirurgie.

The case reported by the author was a woman of thirty-three years, who had for two years suffered with dysuria of gradually increasing intensity. She had noted from time to time the passage of fine urinary gravel. There was no history of renal colic, and the region of the kidneys and ureters showed no tenderness on pressure. On the other hand, pain was complained of on pressure over the bladder. The vesical capacity was reduced to 20 cc. The urine was purulent, sanguinolent, and contained calcareous particles. The use of the metallic sound showed that there were no vesical calculi lying free in the bladder, but that the walls of the viscus were incrustated at numerous points. No tubercle bacilli were found in the urine, which, however, contained numerous organisms. The usual local applications and lavages had been tried without any apparent effect. Nitze's cystoscope could not be employed because of the diminished vesical capacity. The use of Luy's cystoscope showed that the vesical walls were covered with a grayish white exudate and at certain points calculous concretions could be made out.

The treatment employed consisted of daily lavages of 1:3000 to 1:2000 silver nitrate solution. From time to time, Luy's cystoscope was introduced and portions of the false membrane and exudates wiped off with a sponge stick. The areas thus bared were then touched with a 2 per cent silver nitrate solution. The combined treatment was continued for one month, during which time marked improvement occurred, the vesical capacity increasing to three hundred centimeters.

The author did not find it necessary to leave a retention catheter in the bladder. In his opinion, the inconvenience of this procedure outweighed its advantage. The patient was able to return home after each treatment.

The author points out the difficulties of endoscopic treatment with Luy's apparatus. The necessity of replacing the light by the forceps when one wishes to make a topical application, frequently results in a displacement of the apparatus.

In the treatment of chronic cystitis, success depends upon not giving up the case when the functional systems have disappeared unless cystoscopic examination shows that the ulcerative process has completely healed. If this rule is not scrupulously adhered to recurrence of the condition is inevitable. Possible accompanying renal and ureteral conditions should be investigated by the X-ray, and by ureteral catheterization. In this connection the reflex polyuria which may follow ureteral catheterization, and the possibility of hæmaturia being due to erosion of the ureteral mucosa by the catheter should be borne in mind in order to avoid misinterpretations. In the case reported, there was a polyuria of three and a half liters and, moreover, although the vesical urine, after treatment had been instituted, never showed the presence of any blood, yet the catheter urine from both ureters was found to contain blood cells.

SALVA MERCADÉ.

Lorthioir: Treatment of Exstrophy (Traitement de l'exstrophie de la vessie). *Ann. d. l. Soc. belge d. Chir.*, 1912, xii, 468. By Journal de Chirurgie.

In cases of exstrophy of the bladder, Lorthioir has given up intestinal implantation of the ureters because of the unfavorable late results. He describes his present method and publishes eight photographic plates which illustrate very clearly the different stages of the operation.

The first illustration shows a child of four months exhibiting the classical symptoms of this affection. The anterior wall of the bladder is absent and the mucosa of the posterior wall forms a protrusion, on the lateral aspects of which lie the apertures of the ureters from which urine flows drop by drop. The urethra shows a complete epispadias.

The second picture shows the formation of a channel between the upper portion of the vesical mucosa and the vagina, with a metal catheter in situ.

The third illustration shows the formation of cutaneous flaps from the skin adjacent to the vesical mucosa. Liberating incisions add to the mobility of these flaps and allow of sufficient play so that they may be sutured together in the median line without tension. A drainage tube is placed in the angle of the wound. It allows the escape of urine, the greater part of which, however, follows the vaginal catheter. The healing of the liberating incisions is slow, but after a few months the vesicovaginal channel is well formed and healing is complete as is demonstrated in this case by a photograph taken seventeen months after the date of intervention.

L. MAYER.

GENITAL ORGANS

Moore: Prostatectomy, with Special Reference to the Sequels. *Trans. South. Surg. & Gynec. Ass.*, Dec., 1912. By Surg., Gynec. & Obst.

Moore stated in his paper that the unsuccessful results of prostatectomy had not been as faithfully reported as the successful ones. The mortality

after the upper and lower operations was practically the same in good hands, but the trend of the surgical world at the present time was toward the upper operation. Every surgeon should be proficient in both. Neither operation was a fit one for novices to experiment with, because both were serious major operations accompanied by some mortality.

In the upper operation, instead of cutting through the mucous membrane in the floor of the bladder it was better to crowd the finger into the internal meatus until the mucous membrane broke, and follow through this opening with the enucleation of the prostate, as taught by the author, and first published by McArthur.

Conservatism should control these operations, but it was not conservative to postpone operation until organic changes had taken place in the bladder and kidneys. Every general practitioner should realize that when he is first called to relieve retention from enlarged prostate he is assuming a grave responsibility, because infection at this time might end fatally in spite of the surgeon's best efforts. Enlarged prostate is easy to diagnosticate, but an operation should never be recommended simply because there was enlargement. A patient should never be introduced into catheter life without first having had the advantages of prostatectomy urged upon him. Old age was not a contraindication to the operation.

The results following prostatectomy were not always satisfactory, even in suitable cases. Patients frequently returned to the family physician, after having been operated upon, in very little better condition than before the operation, and sometimes worse. Impotence followed the operation in a certain percentage of cases; and until we knew just what caused the impotence we would be unable to prevent it. It was probably due to disturbance to the nerve supply. Gangrene of the bladder was an occasional sequel, to be prevented by handling the tissues as gently as possible. Careful search for stone should be made at every operation, because many times they had been overlooked. They undoubtedly formed after the operation in some cases. This should be prevented by emptying the bladder of blood clots and all detritus. When the bladder was in a reasonably good condition the cystoscope might be used to advantage, but with a badly infected bladder it did more harm than good, and catheterization of the ureters was unwarranted.

With improvement in our technique urinary fistulæ were much less frequent than formerly, but were still an occasional sequel in cases that required unusually prolonged drainage. In cases of atony of the bladder the patient should be told that he would probably have to continue the use of the catheter after the operation, but that catheterization would be much easier and more comfortable.

Incontinence or dribbling was an occasional sequel after both operations, due to injury to the sphincters or their nerve supply. To prevent this sequel the sphincters should be entered as little as possible, and in the upper operation more careful closing of the wound should be performed. The tendency in the upper operation was toward the more complete closing of the wound.

While present day prostatectomy was one of the most beneficial operations at our command, the number of failures and sequels was too numerous. May not less radical measures be better, such as removing the third lobe and dilating the prostatic urethra through a suprapubic opening, which was accompanied by neither complications nor sequels?

E. S. Talbot, Jr.

Pedersen: Adenomatous Hyperplasia of the Prostate Gland. *Med. Rec.*, 1912, lxxxii, 1162.

By Surg., Gynec. & Obst.

The author reports a case with operation and possibly consequent chronic suppurative nephritis with calculi in kidney, ureter and bladder. The following are the important features:

Male, white, 50 years old, single, retired policeman; family history negative; past personal history negative; former venereal history unimportant. Prostatectomy February, 1910, by a general surgeon after attack of retention of urine. Perineal prostatectomy, usual after treatment, uneventful recovery, except for secondary stricture. Dilated to 30 F. in March, 1910, one month after prostatectomy. Discharged cured May 16, 1910. Adenoma with tendency toward malignancy according to pathological report. All urinalyses negative. There was a subsequent incontinence of urine except that the patient could start and stop stream at command. A permanent urinal was worn. Cysto-urethroscopy was negative for definite cause of incontinency. Double seminal vesiculotomy for relief of symptoms failed, after preliminary cystoscopy which showed moderate cystitis and mucus from the right ureter. Severe cystitis appeared subsequent to the operation, which was caused by stones found in the bladder at a second cystoscopy. Ureteral catheterization showed an obstructed right ureter with pus and blood, normal left ureter. Urinalysis negative for tuberculosis, and showed slightly deficient urea and slow phenolsulphonephthalein excretions. The right kidney was almost inactive. Radiography revealed several stones in the right kidney, a large stone in the right ureter near the bladder and two in the bladder. Radiography previous to the seminal vesiculotomy was not conclusive; showed no stones although plates seemed perfect. Operation March 24, 1912, stones removed from ureter, kidney and bladder in the order named within about two hours, considerable shock relieved by stimulation, returned to bed in fair condition, excretion of urine resumed, death at the end of thirty hours with pulmonary symptoms, seemingly embolism. Pathological report showed chronic suppurative nephritis of the right kidney in multiple foci and with multiple calculi; left kidney showed chronic diffuse nephritis. Five stones were recovered from the kidney, one large and five small

ones from the ureter and a small mass of crumblings from the vesical calculi after the litholopaxy. The article is accompanied with photographs of the X-ray picture, the stones, the gross specimens of the kidney and the sections.

Schmidt: Conservative Surgery of the Testicle. *Beitr. z. klin. Chir.*, 1912, lxxxii, 36.
By Surg., Gynec. & Obst.

Schmidt has investigated experimentally several important problems connected with the surgery of the testicles. He first studied the fate of the testicle transplanted into the abdominal cavity in young dogs as regards function — spermatogenesis and atrophy. In the literature a number of cases of retained testicle with mature spermatozoa in the ejaculate have been recorded. Rarely sperms have been found in a double cryptorchid. In most cases spermatozoa were absent both in the ejaculate and histologically. In the cases of abdominal testicle reported, no authentic instance of spermatogenesis is at hand. Since Rizzoli's first report in 1855 a number of cases have been reported in which the testicle was replaced from the inguinal canal into the abdominal cavity. No malignant changes occurred. On the experimental side the testicle has been successfully transplanted into the abdominal cavity in most laboratory animals. Schmidt has repeated the experiments of Stilling and Steinach in young dogs by putting the testicle into the abdominal cavity both with the attached tunica vaginalis and processus vaginalis and without these attachments. In dogs before the stage of puberty the testicle though transplanted did not atrophy previously but developed to the stage of the spermatocytes. Then degeneration gradually took place. After 6 months only Sertoli's cells could be found with some degenerated spermatogonia. The testicle as a whole was atrophied irrespective of its separation from the processus vaginalis or its tunica. These findings agree with the clinical observation that cryptorchid testicles are relatively well preserved in young individuals. The cause of the atrophy of the transplanted testicle is unknown. Schmidt is inclined to believe that trauma and the variable pressure to which the testicle is subjected in the abdominal cavity are the principal factors.

In practice we learn not to expect spermatogenesis in the normal testicle transplanted into the abdominal cavity, but only relief of symptoms. There appears to be but slight risk of malignant degeneration. In a young individual the retained testicle should if possible be replaced in the scrotum before the fifteenth year. There is no absolute proof, however, that a double cryptorchid previously sterile can regain his functional power after replacement of the testicle in the scrotum. Schmidt also found that the testicle transplanted under the skin of the inguinal region lost the power of spermatogenesis.

Schmidt investigated the results of implanting the ductus deferens in the testicle. It has been found that spermatocytes are present in the testicle years after closure of the ductus deferens and even in congenital absence of the duct. The function of the testicle is not disturbed either by closure of the ductus deferens or by extirpation of the epididymis, e. g. for tuberculosis. An exploratory splitting open of the testicle in operating for tuberculosis of the epididymis is justifiable according to Schmidt's experimental observations. He found that the parenchyma of the testicle heals without scar formation in young dogs. In older dogs the scar is very slight. Occasionally there may be injury from slight hæmorrhages, but the whole of the parenchyma is not affected and the development of the testicle is not disturbed.

Bardenheuer in 1886 first suggested the conservative surgery of the testicle in tuberculosis by making a reservoir for the secretion of the testicle out of the resected ductus deferens. Since then numerous attempts to effect an anastomosis between the ductus deferens and the testicle have been made. Bolzer in 1891 first attempted a direct union of the duct with the tubules of the rete testis. In dogs the anastomosis of the deferential duct with the rete testis gives uncertain results. In practice after extirpation of the epididymis for tuberculosis the implantation of the severed duct into the rete testis is inadvisable because of the injured vessels and nerves. Direct implantation into the body of the testicle gives the best results. In dogs Schmidt has attempted the implantation of the duct into an opening in the testicular substance with a fine silk thread and also without any thread to anchor the duct. In 21 observations not a single direct communication of the duct with the seminiferous tubules could be demonstrated. The newly formed connective tissue formed an impassable barrier between the two. In two cases in Enderlen's clinic in which an implantation into the testicle was made there was no functional return.

The value of the interval secretion of the testicle for the organism as a whole is a sufficient indication for the conservative surgery of the testicle. This interval secretion is supposed by some to be related to the interstitial cells of the testicle. After X-ray exposures it has been found that the sperm-producing cells are destroyed, while the interstitial cells are preserved. The fact that the interstitial cells are preserved in the abdominal testicles is of considerable importance to the individual. Schmidt has found that following X-ray exposures to the testicle the adrenal and hypophysis were histologically unaltered while there was a slight increase in the weight of the hypophysis. ERWIN P. ZEISLER.

Herbst: The Surgical Treatment of Chronic Seminal Vesiculitis by Vasostomy. *J. Am. M. Ass.*, 1912, lix, 2242. By Surg., Gynec. & Obst.

Herbst concludes his paper with the following summary:

1. Symptoms referred to the bladder and prostate are frequently relieved by vasostomy.

2. In certain cases vasostomy has relieved symptoms ascribed to enlarged prostate, just as did castration years ago.

3. Vasostomy is especially indicated in cases in which we have to deal with either a partial or a complete occlusion of the ejaculatory ducts.

4. This operation gives a fairly high percentage of cures in a class of cases which must either be relegated to the incurable heap or be subjected to a far more dangerous and difficult surgical procedure.

L. G. Dwan.

MISCELLANEOUS

Bonnet: Melanuria in Melanotic Tumors (De la mélanurie dans les tumeurs mélaniques). *Lyon chir.*, 1912, viii, 582. By Journal de Chirurgie.

Melanuria, so called by Lannec, was described by Eiselt in 1861 as a symptom of melanotic tumors. The majority of authors confirm this opinion and attribute the dark discoloration of urine, when exposed to air or submitted to the action of oxidizing agents, as of great diagnostic value. Virchow and others, however, deny that this sign is pathognomonic. The urine may be very dark on emission, but this is unusual. It changes in air and in light, but does not become completely black, as is stated by the classic writers. To obtain this coloration it is necessary to add several drops of a reagent, the best of which is nitric acid, added to the urine when brought to the boiling point, perchlorid of iron, or the mixture of two parts of chromic acid and one part of sulphuric acid.

The origin of this special coloration of the urine is discussed. Virchow, Senator, and Litten attributed it to the presence of indican and believed it only existed when there were metastases in the liver. Pribram, Mörner, Kobert and Helmann believed it was caused by a special pigmentation similar to the melanin in tumors, which was found in the urine in the state of uncolored chromogen.

In reality melanuria is of little value, because it is inconstant and very rare (in fifteen personal cases of melanotic tumors, Bonnet only found it three times). It may also exist aside from melanotic tumors, in certain intoxications, infections, osteomalacia, secondary cancer of the liver (Bonnet: 5 cases), angiocholitis, lymphadenitis, and after the absorption of certain drugs.

Its appearance is late, and most authors think it diagnostic of generalization of the disease and the formation of metastases, and believe, with Nevveu, that its presence is an absolute contraindication to operation. However, there is nothing pathognomonic about this condition, since a certain number of Bonnet's patients died with a generalized involvement without having presented melanuria. Lucke and Eberth think that this sign only appears when there are secondary tumors in the kidney. Virchow, Hoppe, Seyler, Senator, and Litten admit that melanuria is characteristic of a generalized tumor formation in the liver. Bonnet holds to this last opinion, because in the three cases where he found this symptom the liver was invaded and he observed four other cases of cancer of the liver which were non-melanotic. Ch. Lenormant.

Boggs and Guthrie: The Bence-Jones Proteinuria in Conditions Other than Myelomatosis: an Instance Associated with Metastatic Carcinoma. *Bull. Johns Hopkins Hosp.*, 1912, xxiii, 353. By Surg., Gynec. & Obst.

The authors make the observation that while Bence-Jones proteinuria is usually associated with multiple myeloma, the relation is not constant. Also that the Bence-Jones protein has been found in conditions other than multiple myeloma. To support these contentions they have collected a number of cases from the literature, and also record a case of their own of metastatic carcinoma in which the presence of the Bence-Jones body in the urine was demonstrated, this case making the second authenticated instance of the sort on record.

In collecting their material they were struck by the fact that all the cases of Bence-Jones proteinuria have one point in common, namely, more or less extensive involvement of the bone marrow. They observe that the relation of multiple myeloma to Bence-Jones proteinuria cannot be specific, for other disease processes involving the marrow may lead to the excretion of this unusual body.

The authors believe that there is much to commend in the suggestion of Hopkins and Savoy that Bence-Jones proteinuria be viewed as an intermediary metabolic anomaly analogous to cystinuria and alkaptonuria but occurring at a higher level.

They believe that it is possible that the bone marrow has some function in connection with the endogenous metabolism of proteins, which may be disturbed by any one of a variety of disease processes and produce this unusual body in the urine.

Geo. E. Beilby.

Savidau: Exploration of the Kidneys in Urinary Surgery by the Determination of Nitrogen in the Blood and the Constant of Ambard (L'exploration des reins en chirurgie urinaire par l'azotémie et la constante d'Ambard). *Thèse de Paris*, 1912, Nov. By Journal de Chirurgie.

In this thesis, inspired by Prof. Chavassu, the author studied the value of urea in the blood and of Ambard's constant as a means of examining the function of the kidney in urinary surgery.

To determine the ureic function of the kidney, according to the work of Ambard, two methods existed: one, the study of urea in the urine; the other, the study of urea in the blood. By these two methods it is impossible to determine exactly the functional value of the kidneys. Considering the urea of the urine, either from the total quantity excreted in 24 hours or the quantity of urea per litre, a relative value only can be attached to the figures of 30 grams for the total amount, or 20 to 25 grams per thousand of urea concentration, because

the total amount is increased or diminished by an alimentation more or less rich in nitrogen. Besides, the concentration, aside from tubular lesions, depends not only on the quantities of water ingested but also upon alterations in the glomeruli. In other words, urine can be watery because of a diminution of urea by disease or an increase of water by heavy drinking. It can also be very concentrated because the glomeruli (the filters) are diseased while the tubules functionate normally. Thus the exact state of the kidneys is not indicated. There is also a source of error in considering the secretion from each kidney.

By examining the secreted urines we can tell which is the better kidney, but not that the better kidney is a healthy one. The study of urea in the blood should give more precise information. The method of Widal and Saval is of value only if the nitrogen intake remains fixed, but, because of the difficulty of calculating it, the amount of nitrogen in the blood only is measured, and thus a source of error is introduced. A comparative study of the urea in the blood and urea in the urine, using the constant of Ambard, gives us a more precise method, according to the author, of determining ureic function.

First, in healthy kidneys there is a constant relation between urea of the blood and the total output of urea. Second, there is a constant relation between the quantity of urea for a given time and the concentration of the urea (quantity of urea per litre).

It is necessary to study simultaneously three factors to determine the secretion of urea: the urea of the blood (UR), the total output of urea (D), and the concentration of the urea (C).

In studying comparatively these three terms UR, D, and C, Ambard has been able to formulate the following three laws:

Law 1. When the kidney excretes urea at a constant concentration the output (D) varies proportionately to the square or the concentration of the urea in the blood (UR^2). This first law Ambard determined by a series of experiments in which he varied the quantity of nitrogen (urea) taken in, maintaining constant the urea concentration by simultaneously ingesting water. This law can be formulated as follows: from two experiments in which the terms UR_1, D_1, C_1 represent the three terms of urea secretion in the second experiment.

$$\frac{D}{D}=\frac{UR^2}{UR_1^2} \text{ or } \frac{UR}{UR_1}=\frac{\sqrt{D}}{\sqrt{D_1}}, \text{ or } \frac{UR}{\sqrt{D}}=\frac{UR_1}{\sqrt{D_1}},$$

which equals a constant figure, is designated by the symbol K. This is the urea constant. The constant of Ambard is then the quotient of the urea of the blood multiplied by the square root of the urinary output of urea.

Law 2. When the patient passes urine with a variable concentration of urea (the concentration in the blood remaining constant) the total output of urea is inversely proportional to the square root of concentration of the urine. To vary this law it is necessary to renew the urea by ingestion in proportion as it is taken out of the blood (a more delicate procedure).

However, this law, after two experiments done on the same basis, resolves itself into this formula:

$$\frac{D}{D^1}=\frac{\sqrt{C^1}}{\sqrt{C}}$$

or what is the same thing

$$D\times\sqrt{C}=D^1\times\sqrt{C^1}.$$

Law 3. When the concentration of the urea in the blood is variable and the concentration of the urea in the urine is also variable, the urea output varies in direct proportion to the square of the concentration of the urea in the blood and in inverse proportion to the square root of the urea in the urine. This law is the result of the two former laws and is easy to verify.

The first of these three laws is the most important, since it was the one which permitted Ambard to evolve the constant, $K=\frac{UR}{\sqrt{D}}$, the concentration of the urea in the urine remaining constant. This concentration, however, rarely remains so, and necessitates a correction of the first formula by 0 times the square root of C. Corrected it can be written as follows:

$$K=\frac{UR}{\sqrt{D}\times\sqrt{\frac{C}{25}}}$$

The number 25 represents the urinary concentration, 25 per 1000.

The weight of the patient must also be taken into consideration, because an individual excretes more urea the more he weighs. The formula of Ambard was established on a patient of 70 kg., so a correction must be made by multiplying by $\frac{70}{P}$ (P being the weight of the individual of whom one is seeking the constant).

The exact formula will then be

$$K=\frac{UR}{\sqrt{D\times\sqrt{\frac{C}{25}\times\frac{70}{P}}}}$$

The value of this constant varies between 0.050 and 0.070. Between these limits the urea function is assured. It is easy to verify this constant by determining successively a large UR, D, and C on different normal subjects and correcting for weight.

The urea constant, according to Ambard, is only a figure giving the relation of the urine of the blood to the square root of the urea output (excreted at 25 per 1000). This urea constant defines the functional value of the kidney for the excretion of urea.

When the patient has a constant two or three times larger than normal, it signifies that the patient would have to accumulate two or three times more urea in the blood than a normal individual if he excretes the same quantity of urine.

TECHNIQUE

1. Clinical. The patient is kept in bed during a definite period, one half hour, and the urine and blood obtained. To obtain the urine, the patient is caused to urinate, the last drops being carefully collected, or he is catheterized to insure perfect evacuation. To obtain the blood, the patient is incised and the cupping glass is applied to obtain sufficient quantity to give 20 cc. of serum.

2. Laboratory. The urea of the blood and the urea of the urine are determined. From this is calculated the amount of urea per litre of blood and the quantity of urea per litre of the urine. These are designated by UR and C, and the quantity of urea in 24 hours by D. The patient is then weighed. We now have all the terms necessary for the formula of Ambard for determining the figure which represents the constant of Ambard.

In the second part of his thesis the author takes up the clinical study of renal function, using this constant, and arrives at the following conclusions:

1. When the urea in the blood is normal the constant oscillates between 50 and 75 cg. The conclusion can be drawn that the function of the diseased kidney is taken up by the helping one and operation can be undertaken.

2. When the urea content of the blood is markedly higher, attaining 120 cg. or more, the conclusion is drawn that both kidneys are diseased and surgical intervention is not advisable. In intermediary cases the compensation of the normal kidney for the diseased one is not perfect, but only approximately so.

3. The constant permits of estimation of renal function in affections of the ureters, and operation is possible if it is found sufficient. In affections of the prostate there are three groups of cases: first, those in which the urea content is lower than 50 cg. and the constant lower than 100; these cases should be operated. Second, those in which the kidney function is mediocre, the urea content of the blood being 50 to 60 and the constant about 150. Lastly, those in which the kidney function is bad — in which the urea in the blood equals 1 gm. and the constant 200 and more. These cases should not be operated. Finally, the author studies the action of the constant from anæsthetics, permanent and urethra catheterization and nephrectomy.

Conclusions. Anæsthetics and ureteral catheterization definitely change the urea function of the kidneys. Permanent sounds markedly improve the condition. In nephrectomy, after the operation the constant is raised (due to chloroform), but soon becomes normal. When death follows nephrectomy it is due to urea insufficiency of the kidneys, with a constant about 120. PIERRE CRUET.

Vedel and Baumel: Extragenital Soft Chancres (Chancres mous extragénitaux). *Montpellier méd.*, 1912, xxxv, 581. By Journal de Chirurgie.

In spite of its contagiosity and inoculability, the soft chancre rarely shows itself outside of the genital region. Therefore it seems interesting to give a résumé of the four following cases observed by the authors:

CASE 1. A man, 23 years old, had a soft chancre on the frenum of the prepuce and three ulcers on the antero-median aspect of the right leg. It develops in the history, that after the appearance of the genital chancre, the patient had fallen on his knee causing a slight abrasion of the skin, and had also been struck on the antero-median aspect of the same leg, with two small resultant abrasions. At the site of these traumatic abrasions, ulcerative necrotic inflammatory processes developed. It is probable that this man, while treating his soft chancre, also treated the wounds of his leg and inoculated these latter with bacillus of Ducray. The pus from each of these ulcerations on the leg and an inoculation on the lower portion of the right thorax developed a typical inoculation chancre. All these chancres healed under the combined influence of heat, peroxide of hydrogen, tincture of iodine, iodoform powder, and several applications of the thermo-cautery.

CASE 2. This was a man who entered the hospital because of an ulcerated purulent wound of the second finger, between the middle and terminal phalanges. There was a deep ulceration, with scalloped edges and with abundant pus and tissue débris. The existence of this ulceration concomitant with two soft chancres of the prepuce suggested that this was an ulceration chancre by inoculation. The bacillus of Ducray could not be found as it could in the preceding case, but the healing of this chancre resulted in an elongated cicatrization and was accomplished by the same therapeutic measures as in the preceding case.

CASE 3. A man 25 years old had a chancre the size of a 25-cent piece on the calf of his leg, which had developed from an insect bite — very probably from scratching with a sponge. He had inoculated it with the pus from a soft chancre on the penis. Treatment: iodoform and thermo-cautery.

CASE 4. This was a young man who came to the hospital with a subpubic ulceration coincident with a soft chancre of the prepuce on the upper part of the penis. There is no doubt that this is a case of subpubic soft chancre produced by secondary inoculation of chancre of the penis.

The absence in these four cases of inflammatory reaction in the glands which drain the regions of the site of the secondary inoculation is worthy of note. J. DUMONT.

SURGERY OF THE EYE AND EAR

EYE

Fox: Trachoma and Its Surgical Treatment. *Ophth. Rec.*, 1912, xxi, 659. By Surg., Gynec. & Obst.

In many chronic cases it is impossible to eradicate the disease without operative interference; and of all the methods which have been adopted, the most successful in the hands of the author has been the grattage operation. The operation is performed in the following manner: The upper eyelid is grasped along its margin by means of Darier's forceps and, the edge being turned upon itself, the lid is everted until the retrotarsal fold is brought into view. A horn spatula should be inserted beneath the lid to protect the cornea. The exposed conjunctiva is first thoroughly scarified with a three-bladed scarificator. The granular tissue is then scrubbed with a toothbrush which has been steeped in a corrosive sublimate (1:1000) solution just before being used.

Immediately after scrubbing, the part is washed with a solution of the same strength. Another portion of the lid is now unrolled and the scarifying, scrubbing and washing repeated until the whole of the palpebral conjunctiva has been subjected to the treatment. If the lower lid is involved in the trachomatous process, it should be treated in exactly the same way.

In the soft, gelatinous variety of granulations the author has found that by using ordinary gauze sponges he was able to smooth down the elevations and clean off the conjunctiva of both lids, leaving it perfectly smooth, so that in a few days all evidences of the trachoma have disappeared. Especial care has been observed to reach the fornix and every other portion of the diseased surface. An antiphlogistic lotion is applied over the lids in addition to cold compresses day and night. The patient is put to bed and the eye pads are kept saturated for two or three days. If the operation has been properly carried out the results are exceedingly gratifying, and it rarely happens that the operation must be repeated on the same person, proving that a reinfection seldom takes place. The author feels convinced that this disease is a curable one, and that a modification of the immigration laws should be made in certain cases, especially where father and mother are free from trachoma and possibly only one child of the family is attacked. This child, under proper treatment, can be cured, and should not be deported as the present law demands.

In many cases of trachoma the swollen condition of the conjunctiva and cartilage prevents the free movement of the eyeball, and by exerting pressure produces pain and aids in the formation of pannus. Slitting the cartilage on the conjunctival surface by Burow's method relieves this pressure and averts its consequent danger.

Paton: Case Showing a Modification of Herbert's Flap Operation for Chronic Glaucoma. *Proc. Roy. Soc. M.*, 1912, vi, 28. By Surg., Gynec. & Obst.

The conjunctival incision is made 5 to 6 mm. from the limbus and the conjunctiva lifted toward the cornea. The narrow keratome is inserted about 3 mm. from corneal margin, being held between a radial and tangential position, but nearer tangential. After the keratome incision is completed, the blunt-pointed Lang's needle-knife is inserted, carried to one end of the incision, and a cut is then made obliquely forward toward the corneal margin, so that it finishes very nearly opposite the end of the keratome incision. A small radial cut is then made from a point toward point *c*. These three cuts map out a triangular flap held only by one tiny point of attachment at *c*. If this is cut through, the same effect is produced as in simple trephining. The aim, however, of the operation is not to cut through this, but to leave the flap attached and (*a*) either ease it out under the conjunctiva as in the right eye of present patient, or (*b*) turn it into the anterior chamber as in the left eye.

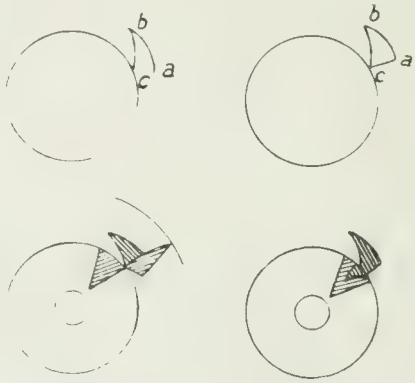

Fig. 1. Fig. 2.

Fig. 1. Flap turned out and lying under conjunctiva.
Fig. 2. Flap turned in and lying in anterior chamber.

Lamb: The Rational Method of Removing Fragments of Iron from the Interior of the Eyeball. *Ohio St. M. J.*, 1912, viii, 610. By Surg., Gynec. & Obst.

There are many objections to the use of giant magnets in removing particles of iron from the eyeball:

1. The patient's head must be moved while the instrument remains stationary.

2. A spicule of iron, drawn forcibly to the posterior surface of the lens, may perforate it and produce traumatic cataract.

3. The suspensory ligament may be torn and partial dislocation of the lens result.

4. Entanglement of the spicule in the ciliary processes may occur, with consequent difficulty in removal.

Why, then, subject the eye to all these dangers when a simpler method avoids them?

An incision through the sclera in the lower and outer quadrant of the eyeball and the application of the comparatively small magnet of Sweet will remove the fragment of iron with much less damage to the eye than the use of a giant magnet applied to the center of the cornea according to Haab's method.

That portion of the eyeball from just back of the ciliary processes to the ora serrata is very tolerant of operative procedures, heals quickly, does not participate in the visual function, is easily accessible from a surgical standpoint, and there are no important nerves or vessels likely to be injured. It therefore forms the ideal location for opening the eyeball for the removal of foreign bodies.

Nettleship: Sarcoma of the Choroid of Unusual Chronicity. *Proc. Roy. Soc. M.*, 1912, vi, 1.
By Surg., Gynec. & Obst.

Nettleship reports a case of sarcoma of the choroid in which the clinical history of the case extends over a period of 26 years.

The patient was first seen in 1886, when he was 51 years old. Vision 6/6 in right, and 6/6 in left, with a minus cyl. P. p. 11 in. in right and 13 in left. Fundus recorded as normal. One year later, right 6/6, left 6/12. Patient said print looked "crooked and squeezed up." Vision improved with a +0.50 cyl. and the ophthalmoscope showed an oval area about the size of the optic disc, below Y. S. of altered choroid consisting of a dark center surrounded by a pale zone; the dark part had a uniform dull, grayish black color with soft edges passing gradually into the gray belt.

Two years later the soot-like smudgy center and pale zone had not changed. The patch did not appear to raise the retinal vessels which passed over it.

When seen 17 years later, vision 6/9 and a reddish gray, rounded mass was seen with a 10 D. suggestive of sarcoma. One year later, vision 6/18, and the next year 6/36, the localized unpigmented mass now being 2 or 3 disc diameters in size. No painful sensations were present in the eye. When seen in 1911 by Mr. Lawford the eye was glaucomatous; nothing could be seen behind the lens and the eye was excised.

Microscopical examination showed an unpigmented spindle cell sarcoma. Nettleship has records of some 16 other private cases of smudge mark in the choroid; only a few of the cases were seen again, and those not over a long period of time, so he could not tell the ultimate result.

He reviews the reported cases of minute sarcoma of the choroid, there being nine or ten in the past decade, in which minimal sarcomatous growth has been discovered accidentally in the examination of the eyeball after death. In Kipp's case the rather rapid increase of a small uncomplicated patch at the fundus led to removal of the eye.

C. G. Darling.

EAR

Auerbach: A Case of Afebrile Sinus Thrombosis and Cerebellar Abscess Complicating Acute Otitis Media in an Adult. *Laryngoscope*, 1912, xxii, 1367. By Surg., Gynec. & Obst.

This case illustrates the difficulty of diagnosis of intracranial complications of acute otitis media.

The patient, a man of 51 years, gave a history of an attack of influenza followed by shooting pains in the right ear. The picture was that of an atypical otitis media with a normal temperature and a slow pulse. The only symptom suggestive of endocranial complication was some tenderness along the course of the jugular.

Incision of the drum membrane was followed by a purulent discharge and an improvement in general condition. There was no rise in temperature, no mastoid tenderness, no dizziness, and no nystagmus or other sign of intracranial irritation until the fourteenth day after the first examination. At that time temperature was 100°, pulse 84, with definite signs of sepsis. Operation followed at once, at which a deep antrum surrounded by eburnated bone and filled with granulation tissue was cleaned out and the middle fossa exposed, showing the dura covered by granulation tissue, which was removed down to the healthy dura. In the absence of symptoms neither the cerebellum nor the sinus was exposed. On the third day following, the patient had a chill; the temperature was 103°, a slight opisthotonos, a Kernig sign, and a slight rotary nystagmus were present, and the patient was markedly toxic.

The second operation exposed the middle fossa. The dura was a dirty gray. No pus and no abscess were discovered here, but a sinus thrombosis extended to the torcular herophili. An abscess cavity in the posterior fossa was exposed and drained. Exitus letalis occurred 8 hours later.

The most interesting feature is the total absence of the almost constant temperature curve of sinus thrombosis.

E. B. Fowler.

Bryan: Relation of Diseases of the Posterior Sinuses to Painful Conditions of the Ear. *Laryngoscope*, 1912, xxii, 1362.
By Surg., Gynec. & Obst.

Cases of earache as a symptom of posterior sinus disease are rare but they occur often enough to make a record desirable.

The nose and the nasopharynx are very rich in sympathetic nerves. The spheno-palatine (Meck-

el's) ganglion, in the upper part of the sphenomaxillary fossa just under the sphenoidal sinus, is associated, by way of the vidian nerve and its branches, with the otic ganglion lying on a lower level and on a plane posterior to the sphenoidal sinus, and from this several branches go to the mouth of the Eustachian tube, one or two filaments to the auriculo-temporal nerve, and a communicating branch to the corda tympani. With these anatomical relations it may easily be seen how painful impressions in the ear are associated with diseases of the sphenoidal or posterior ethmoidal sinuses.

This is supported by a report of three cases with a history of severe pain in the ear and negative aural findings that were cured by operative treatment of the existing disease of the sinuses. E. B. Fowler.

Loughran: The Radical Mastoid Operation. *N. Y. M. J.*, 1912, xcvi, 1275.
By Surg., Gynec. & Obst.

The object of the radical operation is the cure of a chronic mastoiditis, the chief symptom being a persistent otorrhœa; the pathological condition being a necrosis of the bony wall of the middle ear and ossicles as well as the additus and mastoid antrum, this necrosis resulting from a failure of resolution in an acute suppurative mastoiditis at some previous time, the otorrhœa being the only objective symptom.

Essentials for the proper healing of the wound cavity are summed up in the thorough removal of all diseased areas and the preparing of the cavity so that epidermatization will go on normally and with the least delay. This includes the complete removal of any foci of infection within the mastoid process and the middle ear cavity; the thorough curetting of the entrance into the Eustachian tube; the establishing of a perfect system of drainage for secretions during the process of healing; and producing, by sufficiently enlarging the external meatus, a satisfactory means of observation and treatment of the healing process.

The healing of the wound is a physiological performance consisting of the development of granulation tissue, varying in structure in different parts of the cavity, and the production of the epidermal layer which, beginning at the margins of the flaps formed from the posterior canal wall and placed in close approximation with the bony wall of the cavity, is encouraged to extend out over the developing granulation tissue and so produce final healing. The proper placing of the skin flaps is essential.

The granulation tissue should be encouraged to fill up the entrance into the Eustachian tube and also the antral portion of the wound cavity so that the only permanent space will be that previously occupied by the middle ear cavity.

Improvement in hearing depends entirely on our ability to retain for the stapes a certain amount of elasticity as a conductor of sound waves. This is difficult on account of the tendency to contraction of the scar tissue in which the stapes is embedded.

Cosmetic results depend on the placing of the posterior incision and the form and size of the reconstructed external meatus.

Voorhees: Labyrinthitis and Cerebellar Abscess. *N. Y. M. J.*, 1912, xcvi, 1212.
By Surg., Gynec. & Obst.

One of the most important symptoms of labyrinthine disturbance is nystagmus. Nystagmus takes place whenever the vestibular nerve is irritated either pathologically or experimentally. This nystagmus is directed toward the irritated side, but if the irritative process goes on to destruction of the labyrinth, very marked rotatory and horizontal nystagmus to the unirritated (sound) side is produced. This latter nystagmus disappears in from three to fourteen days.

A second important symptom is dizziness with turning, either of the patient himself or of surrounding objects. This turning usually corresponds with the direction of the nystagmus.

With dizziness and nystagmus there is always periodic (inconstant) nausea and vomiting.

After the decline of a severe attack, which lasts from a few hours to two or three days, this dizziness goes over into marked disturbances of equilibrium, with ataxia of trunk muscles and inco-ordination of arms and legs.

Falling takes place in a direction opposite to the nystagmus and is influenced by the position of the head. When a labyrinth is destroyed there is, of course, complete loss of hearing.

In cerebellar abscess nystagmus is directed to the diseased side, remains stationary or increases from day to day, is rotatory with a strong horizontal element, and is inconstant. The dizziness is constant (not periodic) and is seldom combined with turning. There is a tendency to fall toward the diseased side, in one direction only, without reference to the direction of the nystagmus, no matter what the position of the head.

Nausea and vomiting are severe and constant when the disease becomes well marked. Hearing is lost only when the cerebellar abscess was preceded by suppurative labyrinthitis.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Heller: The Submucous Operation and Some of Its Difficulties. *N. Y. St. M. J.*, 1912, xii, 707. By Surg., Gynec. & Obst.

Three difficulties are emphasized: the initial incision, the securing of a wide flap under which to work, and the removal of the bony crest. The first is to be overcome by simultaneously cutting through mucous membrane and cartilage from the operated side to the perichondrium of the opposite side, holding the blade at right angles to the cut surface. After leaving the cartilage the incision extends down to the bone, across the floor almost to the level of the inferior turbinate. Having separated the perichondrium above down to the crest, where it is densely adherent to the periosteum reflected from the bone below (Ballenger), a semi-sharp elevator is inserted at the terminus of the original incision and, dissecting backwards, separates the periosteum from the nasal floor. Working toward the septum, the mucous membrane is lifted until only a bridge of tissue remains at the summit of the crest. This is readily severed and leaves a wide curtain extending from the dorsum above to the floor below, about at its junction with the inferior turbinate. This gives a wide space within which to work and insures at least one intact flap to replace should the other become lacerated. It is brought out that the operation is a plastic one, and all difficulties can be overcome by adhering to the lines of natural cleavage and avoiding undue haste.

Baldwin: The Finger in Rhinoplasty, Improved Technique. *Surg., Gynec. & Obst.*, 1913, xv, 720. By Surg., Gynec. & Obst.

This successful and ingenious method was used with very satisfactory results by the author in the repair of two cases. The case here reported is that of a young woman 29 years of age, who from a lupus vulgaris, which had run its course, suffered the entire loss of nasal bones, cartilages and soft parts, leaving a large triangular opening. This was repaired in the following manner. The author, thinking it would be advantageous to have a double flap of skin (one continuous with the skin of the face and the other replacing the mucous membrane of the nose), secured this by making a flap low down on the right side of the abdomen, making three incisions corresponding to three sides of a rectangle, the fourth being a hinge and retaining its vitality until it had united to the finger. The skin of the abdomen was dissected up and the wound made by the flap was closed. The left ring finger was then split in the middle line of the palmar surface from the nail to the web, and the edges were dissected up from the bone, which was removed. This raw surface was then applied to the raw surface of the abdominal flap, their edges being brought together by three silkworm gut sutures on either side. These sutures were left long to retain the bat-wing shape and size of the flap by tying them over a perforated copper splint which was cut from a Levis splint. Other coaptation sutures were laid along the edges of the flap. Protective dressings were then applied and the arm strapped to the side. Two weeks later the abdominal flap was released and the patient returned home with the copper splint in place.

The blood-vessels had been cut transversely in order that a uniform circulation in the flap should be attained in anticipation of the transfer of the finger to the face.

After a lapse of several weeks, the distal end of the finger was denuded of skin and nail including the matrix, the edges of the finger flaps were freshened up and slightly split, the tissues at the upper end of the field were undermined in order that the end of the finger might rest upon the frontal bone, and the internal flaps of finger and face were united with fine silk left long, after which the external flaps were carefully sutured to the skin and plaster of Paris applied to hold the trunk, arm and head in a fixed position. The part of the cast designed to hold the trunk and head was put on the previous day, facilitating the fixation under the anæsthetic. After three weeks the finger was detached, the result being pleasing in every way. H. A. Potts.

Brown: Transplantation of a Piece of Cartilage in the Septum to Prevent Perforation after Submucous Resection. *Laryngoscope*, 1912, xxii, 1347. By Surg., Gynec. & Obst.

The author speaks of the common condition of septal deformity where there is a sharp spur of bone with membrane covering it so thin that it breaks at a touch, if it is not already eroded. He also shows that in such conditions the membrane of the concavity often dips down into a sharp groove, where it is easily injured, thus frequently causing tears or punctures opposite each other, no matter how great care is exercised in dissecting up the membranes. In such a case, in October, 1909, he took a piece of cartilage that had been removed from the patient's nose, cut it down to a thin plate and inserted it between the flaps of membrane to separate these two tears, in the hope that it would heal in and prevent perforation. The result was all that could have been desired. The patient disappeared from observation in two weeks, with a perfectly healed septum, the graft still being in place.

Brown reports two other cases, also clinic patients, with the same result, and then reports

four cases in private practice, where he was enabled to follow the after history. It seems that in all of these cases the membrane healed down smoothly over the splint of cartilage, which gradually became absorbed in the course of from six weeks to three months.

He commends this little precaution to others as a good preventive of a very common accident.

In his seven cases there was one partial failure, where the largest splint available was not quite ample to cover the entire tear.

A brief review of the literature is also given, one similar case of this kind being reported by Dr. Isabelle Kerr of Boston, in the *Woman's Medical Journal*, January, 1911.

Butt: Some Considerations in Reference to the Nasal Septum. *Laryngoscope*, 1912, xxii, 1351. By Surg., Gynec. & Obst.

The author takes up the essential points in the embryological and early childhood development of the nose, showing that the period about the sixth year seems to mark the beginning of the forces and conditions that cause septal deflections. The septum is then for the first time set between the unyielding base of the cranium and the hard palate, and as the various forces of growth meet and oppose each other overriding and deflections often result.

He refers to the statement of Freer (*Annals of Otology, Rhinology and Laryngology*, 1910) that each constituent part of the septum has its own complete covering of periosteum or perichondrium which passes through the sutures, of importance because of the difficulty caused thereby in the elevation by blunt dissection.

The more common overridings of the cartilage, especially along the floor, are brought out with emphasis on the necessity of having the muco-periosteal flap stretched between two points that are in the median line in order to get a good result.

The author also advises that the incision be made running "down over the septal cartilage" and at right angles "across the floor of the nose in the skin part of the vestibule." E. B. Fowler.

Alles: Mucocele of the Anterior Ethmoidal Cells. *Lancet*, Lond., 1912, clxxxiii, 1645. By Surg., Gynec. & Obst.

Alles reports his case from the clinic of Fuchs of Vienna. The patient, aged 25 years, consulted for a well-marked exophthalmos of the right eye, which had been present since 3 years of age. At the junction of the upper and inner wall of the right orbit a hard nodular mass 2 cm. wide and 2 cm. long was found, which was diagnosed as a cholesteatoma. The case was operated by Fuchs, the ethmoidal cells drained from the outside of a quantity of brownish colored semi-gelatinous fluid and the frontal sinus opened. The cavity was packed with gauze. The patient died two days after operation. Mucocele of the ethmoidal cells alone, without any of the other sinuses being affected at the same time, is rare. As to the causes of a mucocele there are two: it may be either caused by a chronic catarrhal inflammation of the mucous membrane lining the sinus, the ostium of which has become previously occluded; or it may be due to an occlusion of one of the ducts of the glands of the lining mucous membrane, and consequent dilatation of it. An interesting fact is the very long duration of the case, which is said to have begun when the patient was but 3 years old. As regards the symptoms, the patient had very few — only a dull ache over the tumor and an occasional supraorbital neuralgia. There was no history of any discharge from the nose. The most apparent diagnosis, both from the point of view of the hardness of the swelling and its long duration, was certainly osteoma. The prognosis of ethmoidal sinus disease is less hopeful than those of the other sinuses, owing to its proximity to the cranium and its contents.

D. C. Balfour.

Thomson: Tuberculosis of the Larynx. *Practitioner*, 1912, lxxxix, 243. By Surg., Gynec. & Obst.

Tuberculosis of the larynx is a complication of pulmonary tuberculosis. Post-mortem examinations show that the larynx is involved in one half the number of all fatal cases.

The atria of infection are two, viz.: (*a*) from the surface of the mucous membrane of sputum, and (*b*) from the submucosa, the bacilli arriving from the lungs via blood and lymph streams.

The disease is twice as common in males as in females. The age is usually from 20 to 40, being unusual but not unknown in children under 10. It diminishes in severity and frequency as age advances. Since in early cases there may be no subjective symptoms, the larynx should be examined in a routine manner in every case of pulmonary tuberculosis.

The author then considers briefly the important points in diagnosis. He states that whereas in 1880 the disease was generally considered incurable, today complete and lasting cures are obtained in a fair number of cases. The outlook is not favorable in those cases where the laryngeal and pulmonary disease is widespread and accompanied by marked general symptoms as well.

There are three main lines of treatment to follow, viz.: (1) treatment of the patient and his pulmonary tuberculosis, (2) cure of the larynx if possible, (3) relief of the symptoms.

Hygienic and dietetic measures are important. Local sprays of cleansing and anodyne nature are useful. "Painting the larynx" with lactic acid has fallen into disuse. Tracheotomy to save life becomes indicated in extreme stenosis. Coincident syphilis calls for specific remedies. Pregnancy should be avoided and nursing forbidden. Tuberculin has not yet proven to be a very valuable curative substance. Floyd Riley.

Johnston: Large Papilloma of the Epiglottis Removed by Fulguration. *Laryngoscope*, 1912, xxii, 1360. By Surg., Gynec. & Obst.

The report is of a case of a woman 68 years old, giving a history of shortness of breath that was gradually becoming worse.

Examination revealed a large cauliflower-like mass practically filling the supraglottic space. The greater part was removed through the direct laryngoscope. Pathological examination: papilloma with suspicious ingrowth in two places.

High frequency spark applied through the direct laryngoscope to the remaining portion of the tumor caused marked blanching, and after a second application a week later the remainder of the tumor disappeared so that no sign of the growth could be made out.

The author believes that fulguration will solve the problem of treatment of multiple papillomata in children and cites a case to uphold this view.

E. B. Fowler.

Belot: The Wisdom Tooth and Its Radiography (La dent de sagesse et sa radiographie). *Arch. d'Elect. méd., exp. e. clin.*, 1912, xx, 583. By Journal de Chirurgie.

The radiography of the wisdom tooth is the most difficult of all dental radiographies from which to obtain clear and serviceable pictures. It is this difficulty, no doubt, which causes the stomatologist to dispense with radiography, which would be of great value in treating his patients. Belot, who is the father of dental radiography, has tried to perfect the technique in such a way as to give certain results in all cases.

By putting the internal surface of the tooth in contact with a small sensitized plate, held in place by various methods, he easily obtains excellent pictures of the front teeth, but it is very difficult to obtain good pictures of the posterior molars, especially when a little trismus is present. The endoradiography of Bouchacourt, in which the source of the X-ray is placed in the mouth, is not used in good practice.

The method of horizontal projection described by Belot enables us to obtain excellent pictures of the wisdom tooth. It necessitates the introduction of small plates into the mouth, the emulsion being in contact with the cutting surface of the teeth which are to be X-rayed and the position of the ampule being determined by the indicator, a device invented by Belot. Here also, the sensibility of the patient, the position of the tooth in respect to the ascending branch of the maxilla, and the presence of trismus are insurmountable obstacles which prevent a good plate from being obtained.

In all these cases, it is necessary to have recourse to the primitive method of applying the plate to the cheek and placing the head in the most favorable position. The picture is generally indistinct and the interpretation nearly impossible because of the projection of the two maxillary bones on the plate. In such cases, the stereoscope is of little use.

This instrument, however, can produce results by modifying the picture as (following the instruction of Belot) by varying the position of the X-ray focus the pictures of the maxillæ may be dissociated on the plate. This produces the effect of the maxilla farthest from the plate having slipped upward and behind. To get this result, the patient is placed on the table, a depression between cushions serving to lodge the shoulder. The head is in hyperextension and the maxillæ are held apart by a cork introduced between the incisors. In carrying forward the focus of the rays behind and below the ear, a shadow of the maxillæ is obtained at the point of contact of the plate, and by making the angle of incidence vary according to the cases very satisfactory images may be secured. Previous study on the dry cranium is very useful.

In this way it is easy to ascertain the presence or absence of the wisdom tooth, to determine its position, the direction of its roots, the state of its evolution, and the contour of its sac.

R. Ledoux-Lebard.

Mummery: A Short Supplementary Note on the Nerves of the Dentine. *Proc. Roy. Soc. M.*, 1912, vi, 23. By Surg., Gynec. & Obst.

Since reading a paper in June last, the author has been preparing fresh sections, and was successful in procuring a very instructive preparation by the Beckwith gold chloride method. The great difficulty in preparing such sections is in getting them parallel to the nerve-bundles for any considerable distance, and this has been one of the great sources of difficulty in tracing the ultimate nerve fibres to the main bundles of fibres in the substance of the pulp.

In the photomicrograph shown, which is from the cornu of the pulp of a human bicuspid, one can see a nerve-bundle termination in the pulp, spreading out into a brush-like expansion of nerve-fibrils which are traceable throughout their whole course from the nerve-bundle into the dentinal tubercles.

This work demonstrates very clearly and fully that the nerves of the dental pulp terminate in the dentine, a question which has puzzled microscopists and led to much controversy. H. A. Potts.

Medalia: Chronic Alveolar Osteomyelitis (Pyorrhœa Alveolaris); Its Causes and Treatment with Vaccine; with a Bacteriological Study and Report of 115 Cases. *Boston M. & S. J.*, 1912, clxvii, 868. By Surg., Gynec. & Obst.

This article comprises an investigation and report of 115 cases of chronic alveolar osteomyelitis (pyorrhœa alveolaris), with special reference to the establishment of its etiology by means of a bacteriological study of pus, chemical and bacteriological examination of the fæces, and urine and blood examinations; also, to establish the value of bacterial vaccines in this disease.

The cases were divided into three groups—incipient, moderately advanced and far advanced.

The treatment consisted of local, systemic and vaccine treatment. The local treatment was carried out by the patient's own dentist. The systemic treatment was principally attention to diet. The vaccine treatment was autogenous vaccine combined with the corresponding stock vaccine and was found to be more efficacious than either alone. In cases where no pus was found stock vaccine made up from several strains of other similar but more advanced cases was used. The doses varied from 50 to 100 million of pneumococcus vaccine and from 50 to 300 million of staphylococcus aureus vaccine. The dose of the streptococcus vaccine was from 15 to 75 million. The interval varied from five days in the beginning to 8 and 14 days later, according to the amelioration of the disease.

The results obtained in this series of 115 cases were: 92 per cent cures in the incipient stage, 93 per cent of cures in the moderately advanced stage. (The cases in both these groups had practically no looseness of teeth.) In the far advanced cases 43 per cent were cured and 47 per cent improved. Perhaps the most important point from the standpoint of the medical man is the large number of systemic disturbances that accompanied this disease. Among the incipient cases 35 per cent had either joint or muscular rheumatism, 50 per cent gastro-intestinal disturbances, and 14 per cent skin affections. The moderately advanced showed 38 per cent rheumatism, 50 per cent gastro-intestinal disturbances, and 12 per cent skin affections.

The following is part of the conclusions:

Pyorrhœa alveolaris, so-called, is in reality a chronic alveolar osteomyelitis. The sockets, which are the affected parts in this disease, are nothing more than enlarged medullary spaces of the maxillary bone.

Trauma is the predisposing factor in nearly all cases, while the pyogenic bacteria (principally pneumococcus, 106 times out of 112, either alone or together with staphylococcus, streptococcus, or m. catarrhalis) are the exciting factors in the etiology. A great many so-called rheumatic diseases and gastro-intestinal affections seem to be directly related to this disease. The vaccine treatment of chronic alveolar osteomyelitis, together with the proper attention to diet, cures or relieves the systemic diseases. Vaccine treatment together with local mechanical treatment yields by far the best results in this intractable disease.

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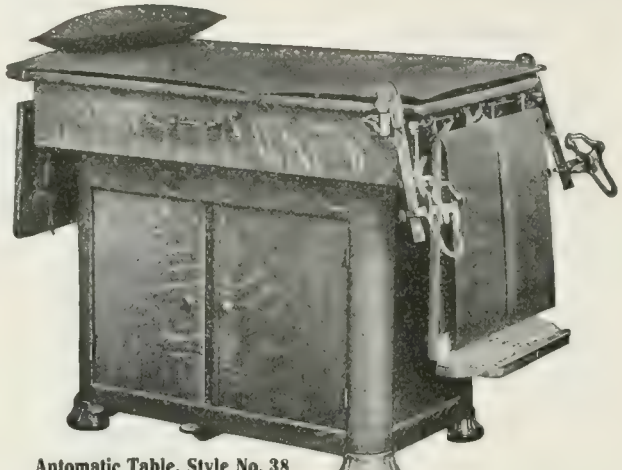

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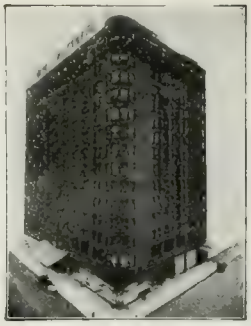

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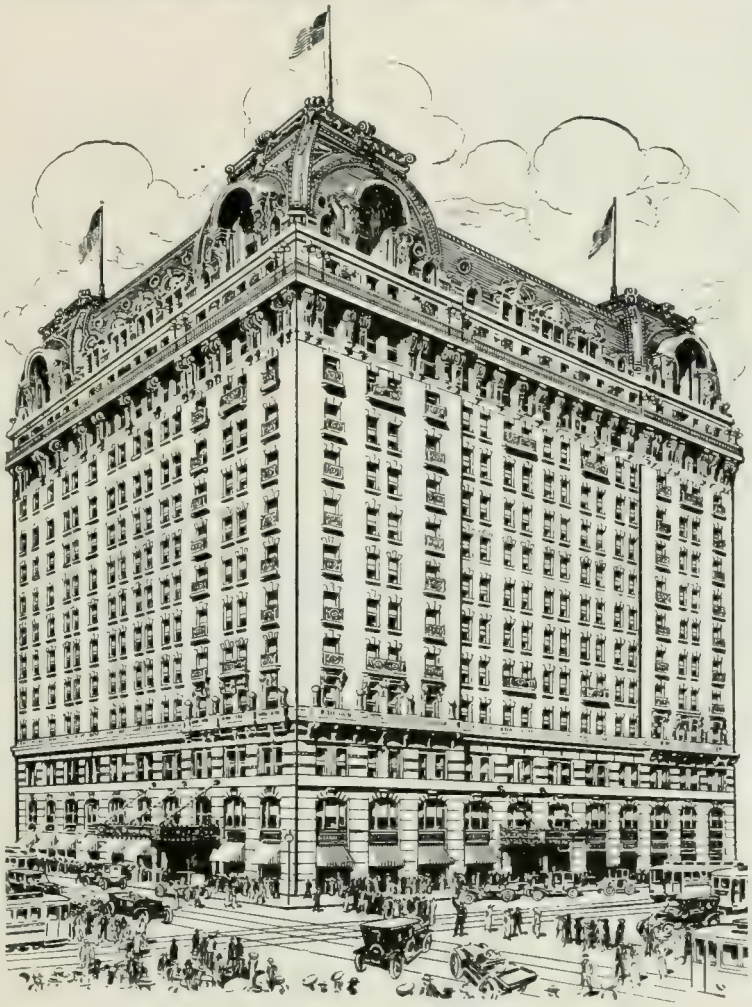

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